

ART AND PRACTICE OF  
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VOLUME VI

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HOLBORN, W.C.2



*The*  
ART AND PRACTICE OF  
PRINTING

VOLUME VI

PRINTING OFFICE MANAGEMENT

INCLUDING

COSTING AND ESTIMATING

BY

T. G. BERGIN

LATE GENERAL MANAGER OF  
MESSRS. HAZELL, WATSON & VINEY, LTD.

THE WORK OF THE ORDER CLERK

BY

J. FULLER

PAPER AND THE PAPER WAREHOUSE

BY

EDWARD A. DAWE

PRINTERS' ACCOUNTANCY

BY

G. F. DAVIES, F.C.A.

PRINTERS' SALESMANSHIP

BY

THE GENERAL EDITOR

*The*  
ART AND PRACTICE OF  
PRINTING

A WORK IN SIX VOLUMES

DEALING WITH THE COMPOSING DEPARTMENT,  
MECHANICAL COMPOSITION, LETTERPRESS PRINTING IN ALL  
ITS BRANCHES, LITHOGRAPHIC PRINTING, DIRECT AND OFFSET  
PHOTO-LITHO, PHOTOGRAVURE PRINTING, PROCESS BLOCK-  
MAKING, ELECTROTYPING AND STEREOTYPING, BOOK  
BINDING AND RULING, PAPER AND THE PAPER  
WAREHOUSE, PRINTING OFFICE MANAGEMENT  
AND ESTIMATING, PRINTERS' ACCOUNTANCY,  
ETC.

GENERAL EDITOR: WM. ATKINS

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*Conservation*

## PREFACE

HOWEVER well built, planned, and organized a printing works may be, having all its employees (men and women) thoroughly trained in their respective crafts, unless the Management and Office Staff be equally efficient in their respective duties, the success of the undertaking is bound to suffer.

This volume deals with the organization of the Office side, and suggests some ways by which the staff can more fully equip themselves to be able to direct and control the complicated details connected with the craft.

The Manager's qualifications, as well as those of the Order Clerk, receive attention, and useful hints for the guidance of each are given.

The Paper Department is fully dealt with, and clear explanations of the various makes of paper set forth, together with tables of standard sizes and weights which will be found to be most helpful. Air conditions of the works and their effects on printing materials are carefully considered.

Accountancy for Printers is explained in simple language, and the method of producing one's Balance Sheet is so clearly set out that it should be within the mental grasp of all.

Finally, that most difficult of all subjects, Salesmanship, is discussed in well-chosen words, and this section, if carefully read and studied, should prove of real value and worth to the man who is desirous of taking up that side of the business as his life's work.

T. G. B.



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# PRINTING OFFICE MANAGEMENT INCLUDING COSTING AND ESTIMATING

## CHAPTER I

### INTRODUCTION: PROPRIETOR OR MANAGER

THE volumes which have so far been published in this series have dealt with the "craft" from the "worker's" point of view, and have been intended to encourage and assist apprentices, improvers, and young operatives in obtaining a more complete knowledge of their trade and to enable them to apply that knowledge in as scientific a way as possible.

The following pages treat more particularly of the "office" side of the business. They will show how closely allied and essential to each other are "workers" and "office," and what complete co-operation and harmony must exist between the two if good and successful business is to result. To-day in sports of all kinds "team-work" is the keynote to victory, and in a business so complicated as Printing the same principle must be encouraged, if that business is to result in a financial success. On that success depends the livelihood of proprietor, manager, clerks, and craftsmen—all interdependent on the co-operation and goodwill and work of each for the benefit of the whole, and, at the same time, for that of the individual.

The high technical knowledge of the young craftsmen of to-day, together with the great advance in labour-saving machinery, render it obligatory on the part of the "office" to be able to put that knowledge and those machines to the fullest and most profitable use.

With this object in view, suggestions are put forward in the following pages which it is believed will tend to assist in the organization of a printing office on an economic and scientific basis and make for increased efficiency in the whole works.

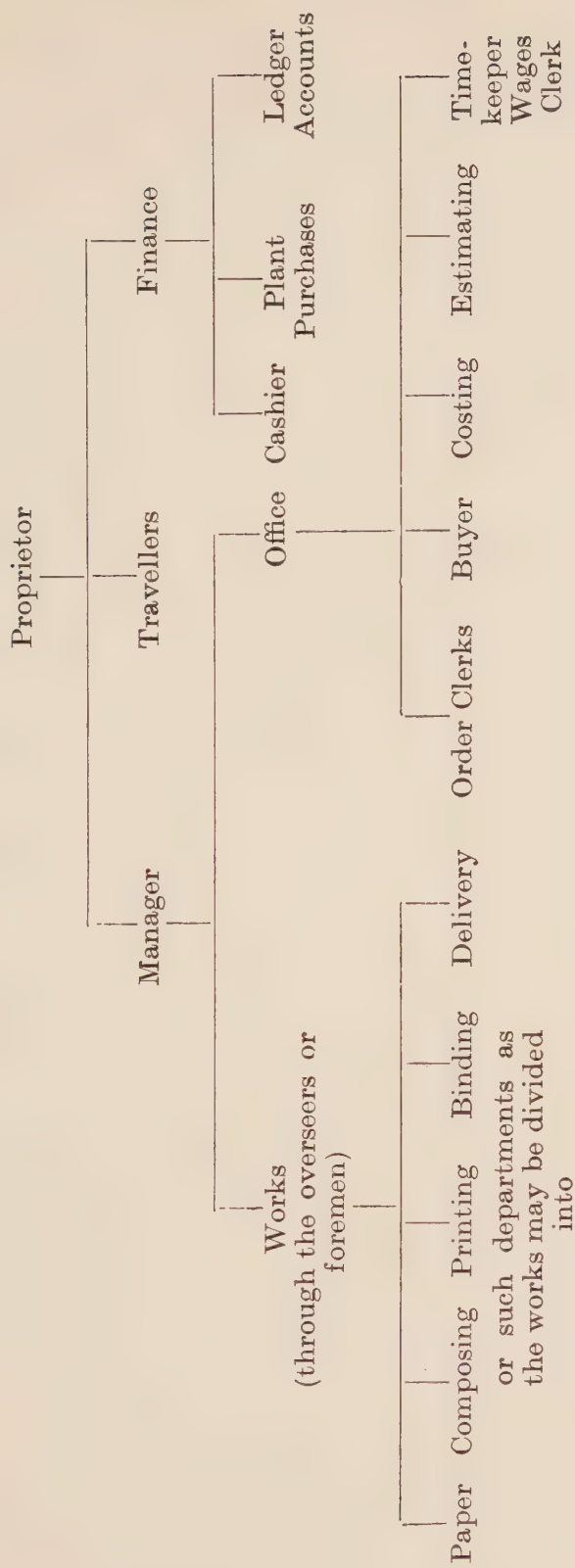
There are, of course, many printing offices which have only a small "office" staff, but the principles here enumerated will be found suitable to large and small firms alike and can be adapted to suit individual requirements as occasion may require.

A well-organized "office" means efficiency, and efficiency saves time and prevents waste, and is a large factor in the success of a business, and will have a reflex influence for good on the "works" side of the concern.

## PROPRIETOR OR MANAGER

IN many small businesses the proprietor will often act as manager, with an assistant to help him.

The suggested duties here assigned to the manager will apply equally well to the proprietor of such a business—while in larger concerns the proprietor would deal, so far as the works are concerned, *through* his manager, and confine his attentions particularly to the financial side of his business, making arrangements for its development and progress, and, in many ways, keeping in touch with the ever-changing conditions and demands of the craft. It is well, too, that the travellers should be under his immediate surveillance. He



should himself make a point of calling occasionally on some of his more important customers.

The diagram given on page 3 shows the suggested lines of contact between the proprietor, his office staff, and works employees.

#### QUALIFICATIONS

The manager should be a man with ability to organize and, at the same time, one who can depute to others, and be able to develop in them a sense of responsibility. He must have a shrewd insight and be able to judge clearly the characters and capabilities of his staff, and so direct their zeal and energies in the right channels. He should possess a good all-round technical knowledge of the various branches of the craft, and although in most offices he will not do actual manual work, he must have had sufficient training to qualify him to instruct others in their particular class of work.

For the modern office, however, a good *organizer* is rather to be selected as manager than one with technical skill only, however good that may be. He should be a man who will be able to gather around him and guide and control a body of men, keen and alert in their own particular branch of the industry, and able in their turn to organize their own departments on sound and scientific lines.

The duties of a printer's manager are very varied, and, in a sense, difficult to define. As his position implies, he is expected to manage the office and the works. In order to do this successfully he must first of all be able to manage *himself*.

It is essential that he be a man of high character, possessed of a good memory, and one whose word can always be relied upon—able to control his temper, and willing at all times to investigate carefully the mistakes of his staff before apportioning blame—one who can be

trusted by his subordinates in all ranks to give them a fair hearing, and upon whose sound judgment they can rely with feelings of trust and reasonableness.

Among the other qualifications of a manager will be—

1. Punctuality.
2. Accessibility to all members of the staff.
3. A sympathetic ear and ready mind to all suggested improvements.

#### PUNCTUALITY

Punctuality is demanded of the works employees as loss of time means less production of work. Equally so the office hours should be strictly observed. A clerk may sometimes have to stay late to complete his day's work, but that should not be an excuse for him to become habitually late in starting the day.

In this matter the manager or, in a large concern, his assistant, should set an example by himself being punctually in his office at the appointed time of commencing business. As the works usually open earlier than the office, it is most desirable that, at irregular intervals, he should pay a surprise visit and go round the departments.

In many offices a "time" book is kept which the overseers and clerks sign stating the time of arrival and also the hour at which they left the previous evening, so that it can be readily seen when overtime is worked and due credit given to the individual for staying late.

This book should be inspected weekly and signed by the manager, who should call attention to anyone repeatedly coming in late.

#### ACCESSIBILITY TO ALL MEMBERS OF THE STAFF

It should always be recognized throughout the works that the manager is willing to see any employee personally at such times as are convenient to him.

This should always be arranged through his overseer or foreman, the employee being at liberty either to tell his overseer the nature of his request or to ask for a private interview.

If after the interview any real dissatisfaction is felt at the decision of the manager, it is always well to report the facts to the proprietor, who may feel called upon to interview the employee himself later on. Should the question under discussion be a serious one it is advisable for the manager to defer judgment, promising to let the employee know in a stated time his answer, and in the meanwhile to consult the proprietor himself. The result can be communicated as promised to the employee who, if then dissatisfied, could appeal to the proprietor and would find the manager's decision upheld.

This prevents a conflict of opinion between proprietor and manager and the staff, which could only weaken the manager's power of authority and control.

#### A READY MIND FOR SUGGESTIONS

A manager should always have a sympathetic ear and ready mind for all suggested improvements, either in the nature of office routine or in the factory itself, and give them his careful attention and consideration. Very often a simple suggestion or hint from an employee may lead to a considerable saving in time and material and be a financial benefit to the firm. Some firms keep a "suggestion" box in which these can be placed. This should be opened by the manager himself and recorded in a book containing a column stating whether the suggestion were adopted or not. A system of payments, varying according to the value of the idea, should be arranged, and the payments be promptly made, even in some cases where the suggestion could not, for some reason or other, be carried out. This would

encourage employees to take a keener interest in their work and be on the look-out for further improvements.

The overseer or foreman should be consulted by the manager in regard to the suggestion, and might, in his turn, be able to improve upon the employee's idea.

In olden days an employee was afraid to "suggest," as it was considered a reflection on his foreman's capabilities, but the modern overseer is only too eager to accept and adopt any new method which will increase the turnover of his department and lessen the cost of production, and will naturally give every assistance in that direction.

#### PLANNING THE DAY'S WORK

The manager's "time" needs a good deal of planning, and with that end in view a daily routine of duties should be arranged and rigidly adhered to.

It is surprising how quickly one can school oneself to such a routine and how materially it lessens labour and increases efficiency.

Such a Daily Time Table would naturally be formed on the following lines—

1. Deal with incoming mail.
2. Inspect order cards of the previous day.
3. Inspect and sign time-keeper's and night-watchman's report book.
4. Sign all overtime sheets.
5. Interview order clerks.
6. Interview overseers while touring round works.

The manager's desk should be a pattern of neatness to the whole staff.

Folders, desk baskets, filing cabinets, etc., have all assisted in doing away with the untidiness of the printer's desk of former days; and a systematic arrangement of one's papers prevents important jobs from being overlooked.

## POST

The incoming morning post should claim the attention of the manager when he arrives at the office. This has to be opened and examined and classified for distribution, and should be done in a well-arranged and organized way.

His desk should be quite clear and the letters cut open by a junior, either with a "letter cutter" or knife, and placed in proper order. The manager withdraws the contents with his right hand, retaining the envelope in his left, and after inspecting it to see that *all* the contents are withdrawn, drops the envelope into a waste-paper basket on the left of the desk. It is surprising how quickly one acquires this habit and how soon it is done automatically.

As he inspects the contents they are sorted into their respective baskets for distribution to the various departments, i.e. invoices for buyer to check, orders for travellers to see, complaints for the manager to investigate, etc. These baskets should always be arranged on the desk in the *same* order every day. By dealing with the post personally in the morning, the manager is made acquainted with the orders, etc., being received, and is the better able to keep in touch with the requirements of his customers when going through the works.

## ORDER CARDS

The index cards of the previous day's orders should then be inspected. These cards have generally superseded the usual order book, they are easy to handle, and an order can be more readily traced through them as they are filed away alphabetically.

His secretary would also lay on his table any "tickler" or reminder of some special job or engagement that requires his attention during the day.

## REPORT BOOKS

The time-keeper's and night-watchman's book (if one is employed) should then be inspected and signed. This book can be a foolscap diary in which are entered the names and numbers of the employees who are absent, stating the cause of their absence.

The night-watchman would report in the same book any circumstances which attracted his attention during the night, such as a tap left running, or a gas ring left alight, or any works or office staff on the premises after hours. There should also be pasted in the book the slip from the tell-tale clock showing the stations visited by him during the night.

## OVERTIME SHEETS

Should any of the employees have been engaged on overtime the previous evening, their names, giving the hours they worked, the number of the job order upon which they were engaged, should be entered on an "overtime" form and signed by their overseer first thing in the morning, and initialed by the manager.

It is important that the job number should be stated on the overtime form, for when the job is eventually costed up it will be seen that overtime was worked and enquiries will be able to be raised as to whether the overtime is chargeable to the customer or was due to the exigencies of the business.

## ORDER CLERKS

It is well before going into the works to visit the order clerks at their desks to see if any queries want settling, or any special orders need looking up, or if arrangements require to be made with the overseers as to expected jobs which may shortly materialize and require immediate attention.

## OVERSEERS

The next duty would be to visit the works and

interview the overseers, inquiring into the state of work in each department, having in mind the question of increasing or reducing staff, and settling any queries with regard to the production of work that may arise.

In some large works it is customary for all the overseers to meet the manager each morning at a stated hour to confer together as to work and to advise each other of jobs passing from one department to another. This enables a department to arrange and plan the work accordingly and avoids suddenly flooding it with an amount of unexpected work which might tend to disorganize the department.

#### TOURING WORKS

The touring of the works at least twice a day is an essential part of a manager's duty. It will enable him to keep in close touch with the factory and be in a position to know very clearly the state of the various departments and where work is most needed. He will doubtless see many things that want putting right, and others that need to be done in a more methodical and scientific way, and it is here he must use his tact and judgment. The foreman's attention should be called to the point in question and suggestions made and advice given, leaving *him* to deal with those suggestions and the individual worker concerned. A foreman soon loses his control over the department if the management deals directly with any of the employees.

#### FACTORY AND OTHER ACTS

The manager is usually considered legally responsible for the due performance of the various Acts which control a factory—though in some cases, where the firm is a limited company, the secretary is liable. It is the business, therefore, of a manager to make himself fully acquainted with the Factory Acts, Electric Lighting Orders, Employers' Liability Act, Workmen's

Compensation Act, Notice of Accidents Act, and to see that the requirements of the law are carried out satisfactorily.

Especial attention should be given to the proper guarding of machinery to *prevent* any possible accident, and to seeing that the sanitary conditions are satisfactory. These are some of the matters needing his watchful eye as he tours the works, and the attention of the responsible individual should be called to any defect which should be remedied as early as possible. It is very annoying, should the requirements not be attended to at once, to find the Factory Inspector paying his unexpected call, and making a complaint which might lead to the firm being summoned later on.

#### ACCIDENTS

Beside the legal aspect there is the moral one of making sure that the employees are as free as possible from liability to accidents, and that they work under sanitary conditions that are devoid of menace to health.

The heating and lighting of the various rooms demand the manager's attention as well, and these should be carefully planned and watched, not only for the sake of the employees, but for the better production of work, and consequently to the advantage of the firm.

#### FIRE EXITS

All *fire* exits must be carefully marked and kept free from obstructions. Fire pails should be properly filled with water or sand, and fire extinguishers ready to hand in a stated regular place. It is well for the manager at least once a quarter to have a false alarm of fire given, blocking certain doors so that all the employees can in time be made acquainted with all the various ways of exit.

Fixed points are usually assigned to all fire appliances, and the manager should have a list hung up in his office and check it off personally every two months. It should be considered a case for dismissal for any worker to use a fire pail for any other purpose than that for which it was intended.

#### CLEANING OF WORKS

The periodical cleaning of the works as prescribed by law also claims the attention of the manager. This is done as a rule at times which will not very materially affect the output of a department, or, if the firm is busy, at the week-ends or the Bank Holidays. These cleanings have all to be entered in the Factory Register, but it is well for the manager to keep a sheet showing how each department was cleaned, and the date—this enables him to forecast the next cleaning, and often arrangements could be made to have the work done in a slack period perhaps by some of his staff without calling in outside assistance.

The Factory Register and Register of Accidents are usually kept by the time-keeper, but they should be examined to see that all the details legally required have been entered and that proper notices have been sent to the officials concerned.

#### TRADE CUSTOMS: TRADE UNIONS

The manager must possess a good knowledge of trade customs and be conversant with the rules of the trade unions connected with the staff over which he exercises control.

These rules govern hours, rates of pay, and method of production, and have in many cases been agreed by the Master Printers' Associations, either in town or country, with the various executives of the Unions.

Should any question arise about which there is no agreed ruling, it would be well for the manager to lay

the matter before the proprietor for him to acquaint his association and get their opinion before giving a final decision. It should be a recognized fact that no overseer or foreman should have the power to make an agreement with the respective fathers of chapel without referring the matter to the manager.

#### OVERTIME

Overtime is essential in a printing office, but should only be worked with the manager's consent. The overseers should inform him of their need to work late, and it is for him to decide whether they should stay or not. Often an extension of time can be obtained from the customer by a careful inquiry, or the customer may even be willing to pay extra for the expedition of his work.

On the other hand, the state of the departments may demand overtime and it might be considered desirable to increase the staff instead of working late, for better work will be produced this way than by calling upon workers to remain a few hours after a full day's work.

On this point the manager should be consulted.

#### APPRENTICES—MEDICAL EXAMINATION

It is very important that the manager should oversee the selection of apprentices and young people. They are the new blood for the works and it is incumbent to see it is as good and pure as possible. A little time spent in choosing suitable boys and girls is well repaid in the better, more useful, and healthier employees they will prove to be. *All* these should be examined by the firm's doctor, apart from the factory doctor who perforce must see them. The firm's doctor should fill up a report form such as illustrated, stating in his opinion whether the person is suitable for apprenticeship or not. This should be attached to the application

form and signed by the overseer and approved by the manager before coming to the proprietor for signature.

Many firms find the medical examination a great saving of expense in the long run. The rectifying of any minor defects, such as teeth requiring extraction, or glasses needed, can be made a condition to be carried out before the young person is engaged or apprenticed.

If the report reveals a state of health unsuitable to the requirements of the trade, valuable time and money is saved in declining such an applicant, who, if engaged, might later on be a considerable anxiety and expense by reason of impaired health and consequent absence from work.

### MEDICAL REPORT

	<i>Date</i> .....
NAME	
ADDRESS	
<i>Age</i>	<i>Sex</i>
<i>History—</i>	
Father	
Mother	
Brother	
Sister	
Previous illnesses	
<i>Heart</i>	
<i>Lungs</i>	
<i>Sight</i>	
	<i>Test for colour blindness :</i>
<i>Teeth</i>	
<i>General Remarks</i>	
	<i>Signed</i>

### EDUCATIONAL TEST

Prior to the medical examination the young person should undergo an educational test and be awarded

marks and so placed in a standard of efficiency. Such a test might be as follows—

	Marks
<i>Reading</i> . . . . .	25
<i>Writing</i> . . . . .	25
<i>Arithmetic</i> . . . . .	20
Addition	
Subtraction	
Division	
Multiplication	
<i>Memory Tests</i> . . . . .	30
Total . . . . .	<u>100</u>

If the standard of efficiency required by the firm were 75 per cent, those failing to gain this percentage would be rejected even if good from a medical point of view.

ENGAGEMENT OF WORKS EMPLOYEES

The engagement of works employees is usually done through the overseer of the department after informing the manager of the need of additional staff. All particulars should be entered on an engagement card such as is illustrated, and these should be signed by the overseer and manager and kept in the latter's office under lock and key as containing information of a private character.

They should be filed away in a filing cabinet. Live and dead drawers form a valuable means of reference should any inquiries later on be made of an employee who had left.

Such, briefly, are the general duties which engage the attention of a manager in a well-organized business.

Founded on sound, practical, and scientific lines, so far as his own work is concerned, he will be in a secure position to organize his staff on a similar basis, and this



will make for economy and efficiency and go a long way to the building up of a successful financial business.

How the manager deals with his staff will be explained as each further section is brought under review.

## CHAPTER II

### OVERSEERS OR FOREMEN

THE proprietor will naturally settle into how many departments his business is to be divided, for the purpose of facilitating production and of keeping proper returns of expenses, etc. If the business were engaged on the production of one article it would be easy to allocate all the expenses on the total produced to find the cost, but it is quite impossible to deal with a printing works on these lines, as the plant and wages and output are so entirely different that a division into departments is absolutely necessary.

#### DEPARTMENTS

These usually are divided in small businesses into the following—

Paper Dept. . . . .	No. 10
Composing Dept. . . . .	„ 11
Printing Dept. . . . .	„ 12
Binding and Warehouse Dept. . . . .	„ 13
Delivery Dept. . . . .	„ 14

These departments, of course, may be extended if other processes are done in the factory or sub-divided into further sections should the proprietor so desire.

#### DEPARTMENTAL NUMBERS

It will be found to be a great saving of time all through the business in works and office alike to allocate a number to each department as indicated. This number will represent the department for all communications from the office and will be used on job-work tickets and various printed forms for the

works. Parcels and letters, moreover, can be marked in the corner with these departmental numbers for house delivery purposes, and it will be apparent how economical their use will be in many ways.

The manager will often act as overseer through the head man of the department, but as the business grows and the works increase, a foreman or overseer will be found necessary for the satisfactory production of work.

#### SELECTION OF OVERSEERS

The overseers will in all probability be selected by the proprietor in conjunction with the manager, and great care and judgment are necessary in their choice. These men will come into much closer contact with the worker than either the proprietor or manager, and a good and competent overseer is a great acquisition to any printing works.

They would naturally be men who were fully expert in their particular branch of the craft, and should be able to control their staffs with firmness and consideration.

#### DETAILS LEFT TO OVERSEERS

The manager would be well advised to leave the details of the execution of the work to the overseer. He should know his men and be able to judge the most suitable man for a particular job, and any dual authority would lead to confusion. At the same time, the overseer must realize he is responsible to the manager, who should have a perfect right to suggest ideas and inquire into the methods of work and generally keep an open and quick eye to all that is going on in the department.

It is not desirable that an overseer should continue the membership of the trade union in which he was apprenticed, but should join his own overseers' association. As an overseer he now represents the firm, and

in a case of a union dispute about his men he would undoubtedly feel hampered if he were still a member of that particular union.

#### CLEAN AND TIDY WORKS

Of course, the connection between the office and the works of a printing business is a vital one, and the well-organized office will have its reflex influence on the various departments.

A tidy and well-kept office will of necessity mean a well-kept and tidy works, and the overseers must see that such a state of things exist in their department, urged on by the watchful manager.

It is the easiest thing in life to get into a muddle, and printers are certainly not the exception, but rather more prone to it than most people. If work is to be satisfactorily produced, facilities must be provided which make for an orderly room, and strict supervision exercised to see that full advantage is taken of them.

#### WASTE PAPER

No waste paper should be allowed on the floor of any department. Galvanized iron waste-paper baskets of large size should be placed at convenient intervals round the works, and the staff should be trained to throw all waste paper therein. For such things as tea leaves, remains of food, etc., each floor should have its sanitary dust-bin, and it should be a serious offence for anyone to deposit such refuse either in a waste-paper basket or in the washing sink.

#### SANITATION

The washing troughs and lavatories should be carefully attended to and disinfected, and the overseer should visit them daily and see that they are in a satisfactory and working condition for the comfort of his men.

Facilities such as these are surprising factors in the

better production of work. Compare, for instance, the old days when composing rooms were unheated except for the gas used for lighting purposes, and only cold water was provided with which to wash one's hands even in winter, with the modern office of to-day with its warm, well-lighted rooms and constant hot water supply.

#### ORDINARY DEPARTMENTAL REQUIREMENTS

There are many things in common with all departments, and it would be well to deal with these first and then show shortly how the management should keep in touch with those departments into which it was suggested the business should be divided.

1. The *punctuality* of the overseers, both at the hour for commencing work and on return from lunch, should be carefully maintained if the staff is to be punctual as well. If an overseer has to make an outside call, this should be done when the works are in full swing, and not before coming into business or going on after lunch.

A time book for overseers should be kept in the office for them to sign as they come in and initialed weekly by the manager.

2. *Interchange* between the departments should be easy, and it would certainly be wise to have a house telephone system installed, apart from the overseers being on the ordinary telephone. Much time and many mistakes can often be saved by 'phoning between overseers, whereas a messenger may be misunderstood, and a note mislaid in the overseer's absence from his desk.

3. Each department should keep an *order book* in which are entered the jobs as received.

Such a book would have a heading as shown on the next page.

In some works cards take the place of books, but

OVERSEER'S ORDER BOOK

Orders received                      day of                      193

Job No.	Customer	Description	Time Received	When Wanted	Put in hand			Remarks
					Employee	Time	When Finished	

unless there is a big staff and the overseer has clerical assistance, a book is preferable, as quick reference can be made to it and one can see at a glance the jobs in the department which are not completed.

#### JOB NUMBERS

All references from the office should be by job numbers, and any overseer should, on inquiry being made for a job, ask for its number as well. Mistakes have often occurred through giving the customer's name only and not the job number. Instructions to alter the size and quantity have been received by an overseer who, to his cost later on, has discovered there were two or three orders in hand for the same firm and the wrong one had been altered.

4. *Promises* for the delivery of work should be carefully given, and the fact clearly stated that the work, so far as the particular department is concerned, is complete. Misunderstandings often arise in this way, the order clerk forgetting that there may be one or two more processes to do in another department before the job is complete for delivery to the customer.

5. *Motors* controlling shafting should be started up at the hours for commencing work, and kept going till the hour for dinner or leaving off arrives.

6. The overseer or his deputy should see that all the employees are out of his department before he leaves, and make a tour round to see that no machinery is left running or lights left on.

7. No employee should be allowed to leave the premises, other than at the usual time, without a pass signed by the overseer stating the cause for going out. This should be retained by the time-keeper for the manager's inspection.

8. The general rules for a works should be few, but these should be strictly enforced. "No spitting," on

the grounds of health; "No smoking," owing to the inflammable nature of a printing works; "No swearing." Employees should be forbidden to go from one department to another without direct instructions from the overseer to do so: often the inquiry could be made by a messenger, while if the worker himself went valuable productive time would be lost. This applies equally to inquiries of the office which should never be made by an employee but by the overseer himself or a messenger sent.

Previous sections of this work have already dealt with the best methods to be adopted in the various processes carried on in a printing works, and have explained the details so clearly that all should be able to grasp and understand them.

There are, however, points of contact with the office management and each department which require dealing with separately, and the following suggestions are made with the idea of ensuring that those departments, apart from the technical side, are conducted in an economical and well-organized manner.

## COMPOSING ROOM (11)

THE overseer's business is to see that the work in his department is not only well done but in as cheap a way as possible. This means he must not be overstaffed or he will have a large amount of waiting time, which of course is non-productive, nor understaffed, as this will necessitate overtime. He must keep a careful eye on the amount of work in his department, at the same time looking ahead for jobs he knows are likely to come his way.

### WEEKLY RETURNS

A weekly return should be supplied him from the cost office, after the manager has seen and initialed it, showing the number of hours of productive work,

number of hours clearing or distributing, and, also, if mechanical machines are used, the number of waiting hours. A suitable form is as under—

COMPOSING DEPARTMENT (11) WEEKLY RETURN		
Week ending.....		
		Hours :
Productive .....		
Clearing or Distributing .....		
Waiting.....		
No. of Employees	{ Journeymen .....	Manager
	{ Apprentices .....	.....

This is the composing room *Barometer*, and clearly sets out the state of his department, and should be carefully studied in consultation with the manager, for it will enable them to come to a definite decision regarding the staff.

#### STANDING AND WORKED-OFF FORMES

*Standing formes* and *clearing* are the bugbears of a composing room. Both are ever present, even in the most up-to-date establishment, but there are ways of dealing with them which will materially lessen these evils.

Rules should be made regarding standing formes such as “a forme should be kept standing . . . ” say for a month and recorded on an index card containing—

Job No.
Customer's Name
Description of the Job
No. of Pages, Size, and No. of Formes
Rack No. where stored
Date last worked

These cards should be sent down to the office weekly for the manager to decide whether the formes should be distributed or kept standing, and, if the latter, whether a charge can be made for keeping the type up. It is well to bear in mind how much unemployed plant is locked up in standing formes, which, if dealt with regularly, could be used over and over again.

The manager should call the overseer's attention to worked-off formes standing at the end of a compositor's frame. This should be forbidden. All formes should be sent as soon as done with to the stores department to be racked. Apart from the danger of "pieing" the formes there is a grave risk of a worker tripping over them or a large forme falling on him and causing serious injury.

Clearing or distribution must of course be done and should, therefore, be tackled systematically so as to allow the material to be returned for use, and not permit it to accumulate heavily for some future slack period.

#### OVERSEER'S DEPUTY

In *all* departments a good deputy or understudy for the overseer or foreman should be appointed who could carry on the work in the latter's absence when called away from the department, or on the occasion of holidays or sickness. In the composing room this is most essential. Here there are so many details to be attended to, particularly with a large and miscellaneous class of work, that, apart from clickers, there should always be some one at hand who has the ability himself to settle many questions that are bound to arise, and so prevent unnecessary delay in the department's work.

He should be recognized as a deputy and placed on the staff to give him some standing. He is usually a non-producer so far as work is concerned, and would be paid above trade rate for a compositor, and come

under the "no lost time and no overtime" arrangement of the general office.

## MANAGEMENT OF THE PRINTING DEPARTMENT (12)

MANY of the general remarks made regarding the composing department overseer and his deputy apply equally well to the printing department, but it will be useful to point out how here there is need for the manager to exercise a careful and attentive supervision.

### MACHINE ROOM

The planning of the room and the arrangement of the various machines is in so many printing houses one of the most difficult matters owing to lack of proper space and light. On account of the weight of the machinery, it is usually placed in the basement, but even here judicious grouping as far as possible and ample provision of good lighting will materially assist the production of first-class work, if it is combined with careful supervision and full account is allowed for the conditions under which the work is performed. "Three-colour half-tone" needs good daylight, but it is surprising what pleasing results can be obtained from underground printing shops, where willing service, "daylight" lamps, and congenial atmosphere count for much in a day's work.

### SUITABILITY OF MINDERS AND LABOURERS

All the work in the printing department is produced by a co-operation of men and machines, and both need careful watching by the overseer. He must use foresight in selecting his minders, as well as their feeders, for each particular machine, so that they may work in harmony together if he wishes to obtain the best possible results. Some minders are artists and can tackle any kind of job in an artistic way, but caution

must be observed lest their zeal and eagerness result in a too expensive production. It is here the overseer must exercise his tact and knowledge. On the other hand, there are those who are splendid at "bread and butter" work and are careful and rapid in making ready any ordinary letterpress job, but quite unsuited for the more intricate work. Labourers, too, vary. Some are good at laying-on thin work, others excel at handling heavy sheets of large size, and can keep up their feeding systematically without tripping the cylinder, whilst others for short runs do well, but cannot be trusted on colour work because they frequently have bad lays or doubles.

The overseer will bear in mind all these points when giving out a job and see that it is suitable for machine, minder, and layer-on, or possibly change round minder and feeder from another machine.

It is generally considered well for a minder to be attached to a particular machine, though, of course, he should be shifted at the overseer's bidding should it be desirable for the nature of the work. The minder in course of time gets accustomed to the habits of his machine, and should be the best man to get the fullest production from it, and he will take a keener interest in it than if repeatedly moved from one machine to another.

#### REWARDS

Rewards are often given for the best-kept machines in the department, and these encourage the men to look after their machines carefully, which naturally keeps the plant in good working order. Should a machine not be required for some time it should be covered over completely by a sheet.

#### WASTE

All waste cleaning rags should *not* be put in the waste-paper baskets, but in special small sanitary bins

with lids—these rags, if not to be washed and used again, should be burned in a furnace. They are a source of great danger and may readily cause a fire and must never be mixed with waste paper.

## ORDERS

Jobs as received into the department should be recorded in the order book, the forme racked, and the rack number marked on the back of the job order sheet. This enables the forme to be readily found when required for working.

The overseer will sort these jobs out according to their size and quality, and classify them for the most suitable machines.

## WEEKLY RETURN

The printing room weekly return, from the cost office in the following form will supply the overseer with particulars as to the amount of work done in his department during the previous week.

## PRINTING DEPARTMENT

Return for week ending .....

	Large Machines D.D.and over	Small Machines under D.D.	Platens
Productive Hours . .			
Waiting „ . .			
(i.e. for work) . .			
Total .			
No of Employees—			
Mindors . .			
Apprentices . .			
Feeders . .			
Total No. of runs . .			

He will see from this return how he stands with regard to work and can call the manager's attention to the fact that more work of a particular kind, to suit the waiting machines, is desirable. The manager should keep hung up in his office for ready reference a register of *all* the machines in the printing department.

This could be set out as under—

No. of Mc.	Size	Style	Largest Sheet	Running Speed	Output	Hourly Rate
P. 2	2 D.	2 Rev.	36½ × 47	1,500	1,100	10/2
P. 3						

He is thus able, when asked to undertake a job, to know whether his machines will take the size in question, and also if he has machines enough to do the work in the required time.

#### MACHINE CHART

A useful chart when long runs are in the house, both for manager and overseer, is as shown, and indicates at a glance what machines are available for work.

Sundays should be shown on this chart as it will call attention to a job overlapping the week, and allowance can be made for colour work for drying purposes, etc.

These sheets would be ruled and printed, the dates being written in as required.

#### RUSH WORK

The manager will often be in consultation with the printing overseer as to the possibility of taking on more work. One cannot obviously increase the number of machines suddenly, but lifting jobs, running over-time during the dinner hour, or all night, will give more

## PRINTING DEPARTMENT (No. 12)

[illegible]

production in a shorter period, and consideration on these lines will demand his attention.

Lifting jobs is an expensive process, for even if the make-ready be preserved these jobs will cost more when put on a second time than if the run were completed.

If an unmanned machine were available it might be desirable to leave the job on its machine and shift the men to the other for the new job; or again, perhaps, by running through the dinner hour and half a night the machine might be free for the expected order. These and many other such questions will arise from time to time and will need careful and quick investigation and decision, a fact which shows the necessity for the manager to have full knowledge as to the state of work in the department.

It is easy to increase the staff engaged on manual labour, but the limitations of the output of machinery must always be carefully borne in mind when undertaking to do a job in a stated time.

#### COLOUR SHEETS

A colour sheet of a special black job, and all three or four-colour work should always be submitted to the manager with the guides for his inspection, as the work progresses. Whilst the overseer is responsible for the correct production of the work under his charge, the manager will be called to account by the proprietor or customer should the printing not be up to the required standard, and he should, therefore, have a say in the matter before it is too late to put things right.

#### FOLDING CHASES

A general instruction should be issued to the composing department that all works of more than one sheet should, as far as possible, be imposed in folding chases. This will enable the printing overseer to

arrange his work the better to suit his machines, especially if the work is needed in a hurry and large machines are available in place of small ones.

#### FOLDING SHEETS TO BE PASSED BY BINDER

All sheets which require folding should be submitted to the binding overseer who should be held liable for correctly passing them for lay for the printer. A rule should be established that all folding sheets, when imposed, and all single formes, before trimming, should be "layed" so as to allow one-eighth of an inch trim at the head; this will save an enormous amount of time in the passing of sheets, covers, etc.

In some cases the paper for small jobs is cut to size before printing. This should be clearly marked on the job-work ticket with a rubber stamp by the department doing the work, thus—

CUT TO SIZE
-------------

#### SET-OFF

One of the great troubles in the printing department is dealing with "set-off." A job is urgently required, it is printed and lying in the room, but the overseer refuses to part with it for fear of set-off. The manager is called in to settle the dispute. Various ways of dealing with the matter will be propounded and tried, but without success, and the manager will then do well to inform the customer of the condition of the job and advise waiting until the next day rather than spoil it by "set-off."

Any job hurriedly printed and forwarded to another department should have attached to it a label marked

WET
-----

to call attention to the fact that it needs handling with care.

## MANAGEMENT OF THE BINDING OR WAREHOUSE DEPARTMENT (13)

THE binding or warehouse department is generally considered the "Cinderella" of the house. Jobs are finally completed in this department, and all the other departments imagine that here lost time can easily be made up, wrongly-imposed pages cut out and pasted in their order, and even rising spaces and letters erased without in the least showing traces of the alterations.

The overseer or foreman will generally find his hands full and be at the beck and call of order and enquiry clerks and travellers alike. It is no good his saying "I have only just received the job from the printer." The invariable answer will be "It must go home at once ; it is now overdue, and the customer is complaining of the delay," no allowance being made for the amount of time required to complete the job.

This department is a difficult one to supervise, combining as it does so many different processes operated by men, women, and young people with or without machinery, and any business possessing a reliable and competent overseer or foreman, well up in his work and tactful in dealing with the office and his own people, is really well served.

Much of the manager's time will be spent in this department, watching processes, suggesting improved methods of work, fixing piece-work rates, etc.

### WEEKLY RETURN

The weekly return of this department would generally be on a different basis from the others, as much of the work is done at piece rates and payment will not usually be made for waiting time.

The following would provide useful information to the overseer, who could at a glance compare the department's output for the current week with that of the corresponding week of the previous year.

### BINDING OR WAREHOUSE DEPARTMENT (13)

Weekly return for week ending .....

Last year

No. of Employees	Time Workers	Hours		No.	Hours	
		Productive	Waiting			
	Men					
	Women					
	Apprentices					
	Total .					
	Piece Workers	Wages Earned		Wages		
	Men					
	Women					
	Apprentices					
	Total .					
	Porters and odd men (non- productive)					

Remarks :

### FOREWOMAN

The binding department will obviously be divided into two main parts, consisting as it does of men's and women's work. Over the women a forewoman should be appointed, responsible to the overseer for her department, well trained herself and able to instruct her

workers in the most economical methods of dealing with the work in its various stages. She would give out piece-work to the girls, pass a sheet for correctness of folding, stitching, etc., and check and initial the girls' piece-work tickets on the finish of a job. She would also initial the works time sheet, seeing that in all cases the job numbers were properly allocated to the individual items so that the cost office would be able to transfer the costs to the job cost sheet.

#### BINDERS' DEPUTY

The men would have a deputy to give out work and generally supervise, and, unless the department were sufficiently large, he might fill up his time doing some productive work himself, such as cutting out leather, cloth, or boards. He would deal with the men's time, work books, or sheets, and the piece-workers' sheets, as in the women's department.

#### A TIDY SHOP

The overseer will find a heavy task in keeping his department tidy, and the manager will be constantly calling his attention to the state of his rooms, but for health and despatch of business this is essential.

One rule that should be most stringently enforced is that no glue-pot must be put out of use without the water being emptied out of the lower pot; also that no glue brushes or pots are rinsed out in the washing troughs, as the glue is likely to adhere to the pipes and block up the drains. Ample provision of waste-paper baskets should be made, and, where necessary, boxes placed beneath machines into which waste can automatically drop and not be allowed to fall on the floor. Cutters' shavings should have their own bins by the machine, the bins being labelled for the various kinds. The shavings, if of sufficient quantity, should be daily bagged and taken out of the department.

## BINDING MACHINES

The overseer should make himself generally acquainted with all the machines in his department, be able to do minor adjustments, and be in a position to indicate where a machine fails to work properly. In larger establishments, where an engineer is employed, it would be better not to touch the machine at all, but to send for him at once, or even, if no engineer is available, to communicate with the maker of the machine or his agent.

## PACKING AND DELIVERY OF GOODS

The binding or warehouse department is often responsible for the packing and despatching of goods.

Before being packed all goods should be carefully examined by an employee specially selected for that purpose.

The job order sheet should be gone through in detail to make sure that, as far as possible, the order executed complies with the instructions thereon. File copies must always be retained to accompany the job order ticket to the cost office. It is an excellent plan, where possible, to send an advance copy to the manager's office for him to inspect. Often his vigilant eye can observe some minor defect, or a failure to follow out instructions as to folding, etc., which can be remedied before the bulk of the order is completed.

This procedure does not relieve the department of its full responsibility, but it often prevents complaints being received from the customer about some trifling error.

The quantity, date, and delivery note number should be entered on the back of the job ticket, special care being taken to ensure that all part deliveries are recorded, so that the total quantity delivered agrees with the amount ordered.

## DELIVERY BOOK

The delivery book should be in a simple form, such as that shown on page 39. When part deliveries are made, it is a good plan to put at the side of the day's delivery the total amount ordered, with the quantity delivered to date (including that delivery) above it as a fraction. A glance then at the last delivery note will show the quantity delivered to date and how much remains to be delivered.

The forms, say crown oblong 8vo, would be printed two to view, perforated, double numbered, and interleaved with plain paper numbered in duplicate, and used with a carbon sheet to save as much writing as possible, and made up into convenient-sized books. The signed slips should be pasted in the book on their return in case proof of delivery of the goods is required. Goods should, under no circumstances, be delivered without a delivery note.

Labels for the parcels, if not typed (and for regular customers it is just as well to get the office to type a supply which should be kept alphabetically in a drawer ready for use), should be clearly written, care being taken to ensure that the customer's name is correctly spelt, and that the address is the place where the goods have to be delivered. The job ticket, when completed, should be forwarded to the cost office without delay.

## BREAKDOWNS

All breakdowns of machinery should be reported to the manager at once, and repairs should be put in hand as soon as possible. To delay is often to court disaster, for, although the department may have several of the same kind of machines, a rush order may be delayed through the lack of one. The miscellaneous small machines in a binding shop are not always in constant use, and it is a good plan to have them covered up

1256

Name.....

Date.....

Received goods as accompanying Delivery Note

Signed.....

1256

## DELIVERY NOTE

Date .....

Messrs.....

.....

Please receive in good condition—

*1,000 Rent circulars . 1,000*

---

*10,000*

From .....

.....

1257

Name.....

Date.....

Received goods as accompanying Delivery Note.

Signed.....

1257

## DELIVERY NOTE

Date .....

Messrs.....

.....

Please receive in good condition—

*1,000 Rent circulars . 2,000*

---

*10,000*

From .....

.....

with their own particular covers when finished with, after being properly cleaned. They are then ready for immediate use when wanted.

#### MACHINERY GUARDS

Guarding of machinery will require constant inspection in the department, where often groups of sewing machines, blocking presses, and wire stitchers are worked from overhead shafting.

#### IDEAS

The binding section of a printing business affords fine scope for experimenting with "ideas" and "suggestions" which are to-day so much needed to develop one's business. The manager and overseer will often be in close collaboration to see how those ideas may be transformed into sound, practical, useful, and economical "realities," profitable to customer and proprietor alike.

## THE PAPER DEPARTMENT

THIS department is the subject of a special section, and methods of stock-keeping will be dealt with in detail therein.

The manager's business will be to inspect the stock ledger periodically and to see that invoices are carefully checked, and all goods entered in the book and also on job cost tickets as given out.

Out-turn sheets of special makings of paper, with reports as to quality, weight, and strength, etc., will be forwarded to the buyer responsible for the ordering of the paper, and also to the manager for his inspection.

The manager should also see that the stock is properly stacked and in its allotted place, agreeing with the ledger, so that in the absence of the foreman there would be no difficulty in finding a required paper.

## CONTROL OF THE GENERAL STAFF

THE general or unallocated employees will be more directly under the control of the manager, who should, to a large extent, arrange and supervise their work.

This staff will, in a fair-sized business, comprise the time-keeper and his porters, the general engineer and his mate, and the carpenter and his mate.

### TIME-KEEPER

The time-keeper is responsible for recording the coming and going of the works employees, and the receipt of goods, notifying the various departments of their arrival.

### TIME CARDS

The old-time *numbered* metal discs for employees have now been superseded by time-recording cards, on which the worker prints his own time from a clock on entry in the morning and after the dinner hour on his return. On the reverse side overtime is stamped.

These cards last for a week, and from them the wages clerk makes up the works earnings so far as *time* workers are concerned, bringing in the piece-work earnings from the sheets forwarded from the departments where the piece-work system is used. No payments should be made for any absences appearing on a card without their being authorized and the card initialed by the manager. An employee allowed out on a pass on the firm's business would not stamp his card, but if allowed to leave early or to go out on private business, his card should be stamped to show the time lost, which would be deducted from his wages.

The time-keeper should enter all goods received, stating the time received, from whom, and how disposed of.

He should keep a watchful eye on all employees, and

be empowered to request any of them to open a parcel they may have with them when leaving, unless producing a pass from their overseer.

#### FIRST AID

As previously stated, the various factory registers will usually be under his control, and if he possesses first-aid knowledge, which is very desirable, he could also attend to a small hospital in case of minor injuries received by the workers. He should be held responsible for seeing that the first-aid boxes around the factory, as required by law, are kept well stocked.

#### NIGHT-WATCHMAN

He should meet the night-watchman before going off duty, and report to him any special instructions as to work or employees to be carried out after hours.

The night-watchman acts as a kind of time-keeper when overtime is worked, but his chief occupation is the patrolling of the works to see no harm arises from fire and theft, and no damage by water from storm or overflowing pipes.

He should be able to receive telephone messages and give sensible and courteous replies, entering all calls in the report book.

#### GENERAL ENGINEER

The general engineer will be responsible for the maintenance and care of all the machinery, heating, and lighting of the factory, doing all repairs as far as he is able.

#### CARPENTER

The carpenter's duties will be to look after the upkeep of the building, seeing that the floors and stairs are kept in a sound and safe condition, the roof watertight, and generally doing any jobs for the various departments as called upon from time to time.

## CHAPTER III

### MANAGEMENT OF THE ORDER CLERKS

THE actual duties and requirements of an order clerk are dealt with in a later section. In a clear manner is set out the technical knowledge order clerks should possess, and how essential it is that their work should be carefully and systematically performed to the advantage of the whole firm. Errors made in this department naturally would go through the whole works, and lack of proper instructions would be the cause of great delay in the execution of the orders.

#### ENGAGING AN ORDER CLERK

The engaging of an order clerk will generally be left in the hands of the manager who, after interviewing several, will select two or three for the proprietor's final decision.

If advertising for a clerk, it is as well to frame the advertisement in as concise a manner as possible, stating the firm's requirements, and having all applications made by letter. This will be a test of the candidates' handwriting and alertness of mind in answering fully the enquiries made, and will materially lessen the manager's time in making a choice. Unless under very special circumstances, the manager should never interview a candidate who *calls* in place of writing when told to do so, as it portends a lack of appreciation of instructions on the part of the applicant. A clerk is eager to secure the situation and thinks he can do better by an interview than in writing. One can appreciate that keenness, but it annoys a manager, taking up more of his time in asking questions than if

he had only a letter to peruse, and often acts prejudiciously against the clerk.

Many firms advertise now under their own names in place of a box number, and this is to be preferred, for it gives to the clerk an intimation of the size of the business and the qualifications he should possess.

The following is suggested as a standard form of advertisement for an order clerk—

“Printer’s Order Clerk, accustomed to putting orders in hand. Reply by letter, stating age, qualifications, references, and salary required to X.Y.Z., 3 Printers’ Alley, E.C.”

Great care should be exercised in the selection, and the candidate should be questioned very closely as to his experience and practical knowledge; tests on similar lines to those adopted in the works might be employed, dealing more particularly, of course, with the technical side of the business. An order clerk must be accurate in dealing with figures, of good memory, and quick in grasping the main features of a suggestion put forward by a customer.

When the final selection is made, the clerk should be informed that he is accepted, subject to his references being satisfactory. These should be taken up by the manager himself, if possible in a personal interview with the previous employers. He will gain more information about the clerk in this way than by ordinary correspondence.

#### MODEL LETTER OF ENGAGEMENT

A letter should be always sent to the accepted clerk, in fact to any person on being engaged as a member of the staff, clearly stating terms of engagement, salary, holidays, etc., and should be standardized, the wording being altered, of course, to suit the individual concerned.

The following might be taken as a specimen engagement letter.

## (FIRM'S NAME AND ADDRESS)

Mr.....

Date.....

Dear Sir,

*re* .....

With reference to your application for the above position, and after our interview with you, we have pleasure in stating that we hereby appoint you as ..... subject to your references being satisfactory.

Your salary will be ..... per week payable ....., and a fortnight's notice to leave will be required on either side.

The hours of business are—

Monday to Friday, 9 a.m.—6 p.m.

Saturday 9 a.m.—12 noon.

A fortnight's holiday is allowed during the year from Friday night, the return to business being on the following Monday fortnight.

Overtime is not paid for nor is lost time deducted, but you are expected to be willing to stay late should the needs of the business require it. Full pay is allowed for a month's sickness during the year.

We understand that you can commence your duties on .....

We are,

Yours faithfully,

In the case of overseers or foremen the hours would be the same as those for the factory, and the notice to leave would be the customary four weeks.

## UNIFORMITY OF METHODS

Whilst the order clerk has certainly a “creative” job, that is, putting in a plain and concise manner the requirements of a customer so that they can be readily understood by the employees throughout the works, and is to a large extent free to choose his own language, at the same time there are many points which are common to all work of this kind, and it is well that the work should be done in a definite order, and that all the order clerks should adopt the same methods.

It can readily be seen how, if uniformity of system pervades the office, much unnecessary labour can be eliminated and the order clerk's task lightened.

#### VALUE OF THE TELEPHONE

Each order clerk should be on the "phone" to both works and exchange. The 'phones should be placed on the left side of his desk. They will save a tremendous amount of time and are well worth the cost. It should be quite an exception for an order clerk to leave his desk, and if for some special reason he should be called upon to do so, he should tell his colleague in which department he can be found should he be wanted.

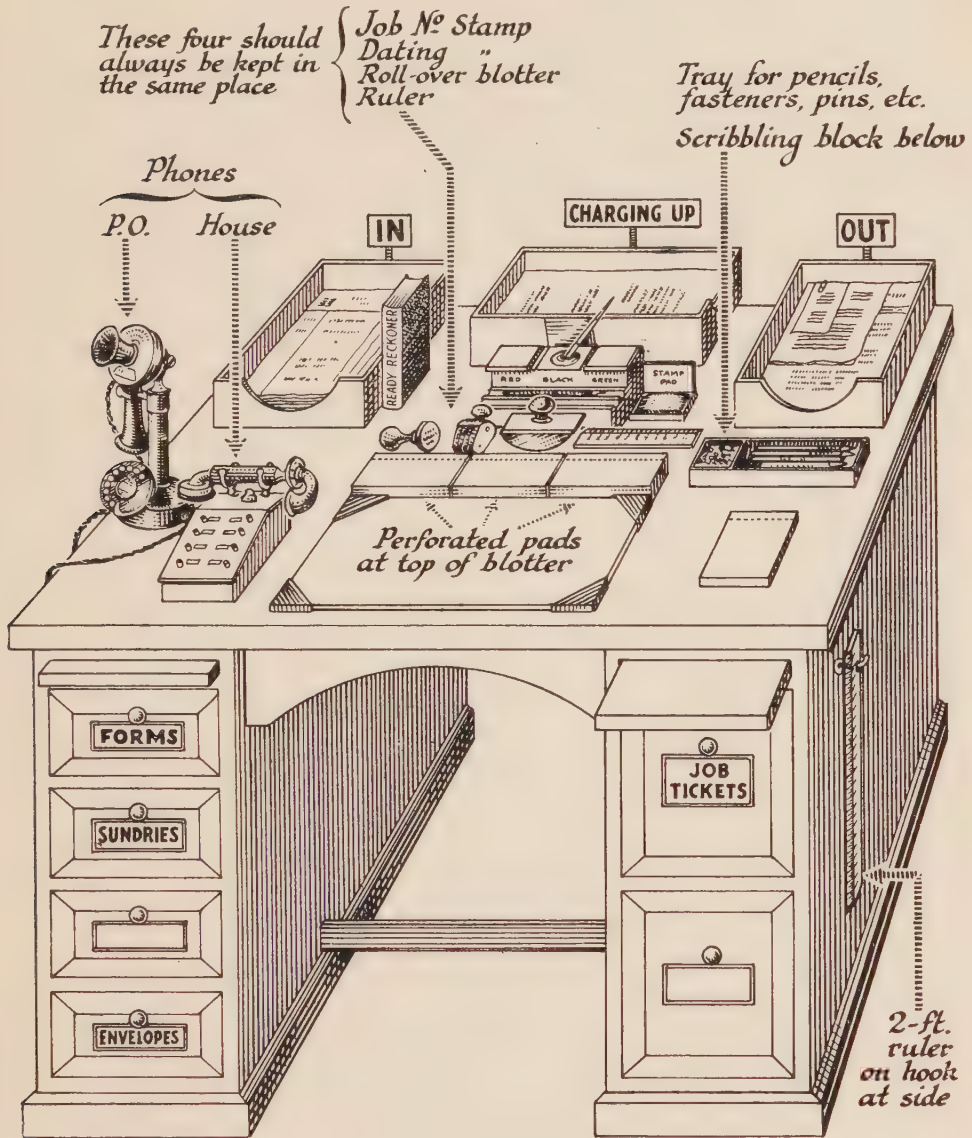
The order clerk should make as much use as possible of helps and aids: he should have a ready reckoner, a 24 in. measure, pads, blotters, and a date stamp on his desk, which might be arranged as set out in the illustration on page 47, all desks being similarly treated.

#### LAY-OUT OF DESKS

The old-fashioned sloping desks and roll tops are now being superseded by flat, table desks with drawers on each side specially set out to meet the clerk's requirements.

Letter baskets for various papers should always occupy the same positions, and be labelled both ends, so that the order clerk can see clearly into which basket he is putting the various jobs, and the messenger be sure of taking out the right matter for the required department. The drawers on the left would be for various forms in use, envelopes of various sizes, memos, etc., while the deep drawer on the right would be divided into compartments for blank job sheets, jobs out on proof, jobs being done out of doors, queries, etc., all being clearly marked. Thus, in the absence of an order clerk, say for lunch or sickness, another order

clerk would be able, on enquiry about a certain proof, to look up and find the job ticket and duplicate proof, and take instructions without undue delay.



LAY-OUT OF AN ORDER CLERK'S DESK

It is well to have a rubber stamp as shown so that all papers relating to a particular order can be stamped and the job number inserted. This often prevents

mistakes being made in the works when two or three jobs are grouped together for economy and worked at the same time.

#### DESPATCH OF PROOFS

All job tickets should have the date of despatch of the proof stamped in the place provided, and should be filed away in the drawer on the right, a copy of the proof with it for reference. This copy will be found to be most useful, and should always be kept back. Instructions should be given to the works always to pull up at least three copies of a proof, two for the customer and one for a file.

#### HOUSE INSTRUCTIONS

It is a good idea for all general instructions from the manager to the clerical staff and overseers to be typed on a House Notice form, for which a loose-leaf cover should be provided for each person. The manager also keeps a file with the names of the individuals to which each notice was sent.



○	○
<p>HOUSE NOTICE</p> <p>Please file for reference</p>	
<p>Manager</p>	

This form will prevent misunderstandings and be found an exceedingly useful and convenient way of giving instructions.

## PAPERS PASSING BETWEEN DEPARTMENTS

Large envelopes of stout manila, stamped boldly with the number of the department, should be used to convey loose papers from one department to another. These can be used over and over again. Similar envelopes could be used for proofs sent to the office. These could be marked with the house telephone number of the particular clerk, and so avoid the writing of a name every time.

## OUTDOOR WORK

When jobs have to be done out of doors the clerk should be exceedingly careful to put the name of the firm and order number on the job ticket as soon as the out-work order is made out. It will then, should occasion arise, be possible quickly to trace the whereabouts of the job. This will also be a guide to the costing clerk to make sure that the invoice has been received for the out-work before proceeding to cost up the job. It should be a rule, most strictly carried out, that no out-work job should be put in hand without a firm's proper order for it, and that the order number should be immediately entered on the job ticket.

## TELEPHONE ENQUIRIES

All telephone enquiries need prompt attention from the order clerk, and should be carefully noted at the time. Promises of work must only be given with a full knowledge of the state of a department and the job required. It is much more satisfactory to delay giving a promise until due enquiry has been made than to readily promise only to find that some previously wanted job blocks the way, and that it is quite impossible to meet the customer's demands.

If additional instructions are received for a job after

it has gone into the works, they should be entered on a special coloured slip as under—

ADDITIONAL INSTRUCTIONS	
Job. No.....	Date.....
Customer.	How received
Details	

#### CHARGING-UP A JOB

It is preferable for the charging-up of a job to be done by the order clerk if possible. The cost will have been prepared by the cost office, but the charging should be done by the person who has had the actual work connected with the job under his control, and will know what that work has involved. Even when an estimate has been given, sometimes there are extras that can be legitimately charged, of which the order clerk is the best judge.

The “charged-up” tickets should always be submitted to the manager for his approval before being invoiced to the customer.

#### IMPRINT

The attention of order clerks and composing-room overseer should be called to the use of the firm’s imprint as prescribed by law, and instructions should be given to use it on all possible occasions. The customer may sometimes object to its use, but it should be a rule that no imprint should be left out without the manager’s consent, who should sign the delete mark himself.

## CONCERNING PROOFS

An *unread* proof should not be allowed to leave the office without the manager's approval, and such a proof should be clearly marked *unread*.

Such proofs are not always understood by the customer and oftentimes reflect discredit on the firm. Far better to delay the sending out of the proofs than to permit them to go out uncorrected. To save writing a letter, a printed slip (which is a little more dignified than a rubber stamp) should be used, initialed by the order clerk responsible for the job so that on its return it can be at once handed over to him to put forward.

Address.....

Date.....

A .....\* of your esteemed order is enclosed herewith.

Please mark "Press" if the same meets with your approval.

Yours faithfully,

.....

.....

.....

\* Proof—revise—sketch, as the case may be.

Proofs, revises, etc., should be carefully examined by the order clerks, before being sent out, to see that they conform to the general instructions given and have been properly pulled. It should be a rule of the house that, as far as possible, all proofs are to be shown on the paper proposed to be used for the job. It will save endless discussions later on and often prevent a job having to be reprinted at the firm's expense owing to

the dissatisfaction of the customer with the quality of the paper used.

#### FILING OF CORRESPONDENCE

All correspondence relating to an order should be filed away under the job order number together with the customer's order in a loose-leaf file. It only adds to the labour of a department if many miscellaneous letters and instructions have to be read through before proceeding with an order.

It is also a great saving of time to file away letters as suggested, for should at any time the instructions be required to be inspected there would be only two places in which to look for them—the job work ticket or the loose-leaf order file. Letters sent into the works are likely to be mislaid, and there is often difficulty in tracing them just when they are wanted, each department stating that they have been sent forward to the next.

The order clerk should go carefully through the correspondence and either send a simple additional instruction form to accompany the job or have back the job ticket for those additions, or, in some cases, issue a new job ticket altogether. If the ticket be altered, the alterations should be done in a coloured ink to call attention to them. It is not reasonable to borrow a ticket from a department, return it altered in some form and not to intimate the fact to the overseer.

## CHAPTER IV

### COSTING

It is not proposed in this chapter to deal at great length with the ways of arriving at the cost of a job in a printing works.

The Master Printers' Federation Costing System is now well known and has been widely adopted, and anyone unacquainted with its methods should study their handbook on the subject. This book clearly sets out the most scientific way of arriving at printers' costs, and many firms who have incorporated this system in their businesses have proved its value time and again.

#### FOR SMALL AND LARGE BUSINESSES

This system is suitable alike for small and large firms. It is easy to install, and the upkeep is far from expensive; the insight it gives of the financial side of one's business is worth the time and money spent upon it. Before one can fairly charge a customer for producing an article, one must know the real cost of such article. As has been stated before, in a previous chapter, if printing produced one kind of article only it would be a simple process to arrive at its cost, and then one could add a fixed percentage for profit. But the complications of the processes in printing preclude so easy a solution to the difficulty. The old-fashioned way, adopted by many firms, was to take the wages paid and materials used and add a percentage to cover all the other costs and profits based on the previous year's returns as revealed by the profit and loss account.

This, on examination, will be found to be far from accurate or reliable.

## WHAT IS COST

The wages costs represent hours of work of men, women, and young people, with and without machinery, and unless the proportion of the individuals' work were always the same, and the value of the materials used remained constant on every job, the result would, in the long run, be disastrous to the firm.

## HOW EXPENSES ARE ALLOCATED

A system, therefore, must be devised which allocates all the expenses, direct (that is, wages) and indirect (such as rent, etc.), to each individual job, and gives the time cost of producing that job. To this result can be added a percentage which will represent the profit on the transaction. This the Federation system accomplishes. By very concise and accurate allocations of wages and all expenses to the various departments in which the work is produced, an hourly rate for all processes can be evolved.

## HOURLY RATES

This hourly rate represents, then, the total cost direct and indirect (apart from materials) of an employee working on productive work in his department. Thus, when one speaks of the hourly rate of a compositor in London being 5s. 8d., it means the total cost (including the man's wages, and his share of the department's expenses and all other expenses of the firm) incurred by that man working for one hour on composing.

The sum, therefore, of the hours worked by all the compositors on productive work in the department for a week, multiplied by 5s. 8d., should equal the total expenses of that department for the same period. To this hourly rate a percentage is added for profit.

## WEEKLY COST OF A DEPARTMENT

From the above method it will readily be seen how

easy it is to arrive at the weekly cost of any department and to know whether the expenses are covered or not. To enable one to check the department's output, a return such as under would be made for the composing room.

	£	s.	d.
Total wages of the composing room for the week . . . . .	100	—	—
Average direct expenses of the department . . . . .	10	—	—
	<hr/>		
	£110	—	—
Department's share of all other expenses for the week, obtained from Form 1 of the System—35% of the total .	38	10	—
	<hr/>		
	£148	10	—
Productive hours worked, i.e. men actually engaged on composition—say 500 @ 5s. 8d. hourly rate . . .	141	13	4
	<hr/>		
Difference or Loss of . . . . .	£6	16	8
	<hr/> <hr/>		

This shows that the hours worked, i.e. actual composing hours, did not quite cover the cost of their production and indicates that the department was not fully occupied for the whole period for which wages were paid. In brief, the principle underlying the Federation costing is the allocation of all expenses incurred in the business to its various processes, to produce a cost per hour of a process done on time or a piece-work unit rate, if done on piece both with and without machinery.

#### A COSTING SYSTEM ESSENTIAL

To the proprietor or manager of an up-to-date printing business such a system of costing is practically essential. Not only is he assured of an accurate and

reliable method of finding out the individual costs of a job, but the returns shown weekly reveal the actual financial conditions of the various departments and will stimulate him to endeavour to get more work for those departments which show a loss.

Returns such as these are not made merely for information, but should be powerful helps in urging on to greater efforts and closer scrutiny of the expenses of the business.

#### COSTING CLERKS

It will be seen that much depends on the costing clerk and his assistants for the accuracy and prompt attention to the work of the costing department.

The costing clerk himself must have made a special study of the system and passed successfully an examination in its principles and methods of construction. It is well that some of his assistants should also have a close knowledge of its details and thus be able to take an intelligent interest in their work.

In conjunction with the costing clerk, the proprietor will agree the various hourly rates and piece-work unit rates, which have been ascertained by the prescribed methods of the Federation system, and these will be the recognized rates of the firm. The work of the costing office, then, is the translating of hours and units at their respective rates into money costs and entering them on the job cost sheets. Naturally, great care must be exercised in such work to see that, as far as possible, all the processes are recorded, and that the costs are apportioned to the right job cost sheet.

#### WEEKLY VALUE OF PRODUCTION

The returns of the value of production sent weekly to the departments are compiled by the cost clerks from the time sheets and piece-work sheets which come to the office daily.

To the proprietor or manager will be submitted weekly a return of all the departments showing the cost of production and the value of production. This may be in the form of a chart for the whole works, with supplementary charts for each department.

On the chart the cost value of the last year's work could be shown in different-coloured ink so that a comparison could be quickly made of the two years and any falling off or increase of business noticed at once.

Another method for this return would be to record the departments' work in money as a ledger account—on the left page would be the cost of production, and on the right the value, set out for each department and totalled for the whole works. Columns should be provided on both sides of the account for the corresponding week of the last year's figures and also for the weekly average of the whole year. The difference between the two sides would be the loss or gain between the cost and value of production.

To the value of the production total has, of course, to be added the agreed percentage for profit to show the exact position of the business.

#### ACCURACY IN COSTING

From the foregoing statements it will be seen how necessary it is to have great accuracy in the costing room. Those engaged in it should be quick and fond of figures, and be well trained in using all mechanical aids as much as possible—such as calculators, tabulators, typewriters, date stamps, etc.

A good understanding of decimals and percentages is essential, and if a clerk can obtain a knowledge of technical terms as used in a printing business so much the better. Many queries will arise between this department and the works, and the cost office must make due allowance for a certain amount of errors and

omissions made by the work-people, bearing in mind that they are workers and not skilled mathematicians. Of course, attention must be called to all mistakes, and these rectified, but it should be done in as graceful a manner as possible.

It will be found in practice that the actual costing returns do not occupy the clerks' time fully for the week. At periods of the day there will be a fair amount to be done and done quickly, but their time can be occupied with advantage in dealing with such work of the general office as the correspondence, wages, filing of job order sheets, etc.

These duties are dealt with in other chapters of this volume.

## CHAPTER V

### ESTIMATING

ONE of the great difficulties connected with the printing industry is the matter of estimating. Firms invite different printers to tender for specific work, and fail to understand how it is possible to have such variations in the prices quoted.

The human element enters very largely into estimating, and only experience and a good knowledge of the firm's resources and capabilities can produce a really good and reliable estimate.

The firm may have ascertained its hourly rates and unit piece rates under the system advocated by the Master Printers' Federation, but the application of these rates to the particular class of work in question is the problem that confronts the estimator. In olden days prices were not often asked for a job, and the few that were required were prepared by the manager himself. Later, as enquiries increased, the foreman or overseer was called in to estimate for his own particular share in the job, the estimates being collected and extended in the office by one of the order clerks. Now, in the modern office, owing to the customer's economy and the keen competition of one's business rivals, the estimating department occupies a large and important place in the office organization, and is, of course, a source of considerable expense to the firm.

#### PRICES TOO HIGH OR TOO LOW

If the price quoted by a firm be too high in comparison with others, unless there is a special reason for the high price, the order is lost; if the price be too low the

job may come their way only to be done at a loss, as discovered later on when the job cost sheets are examined. How essential, then, to see that the estimating department of a printer's works is as efficient as possible.

#### QUALIFICATIONS OF ESTIMATOR

The estimator must possess a good knowledge of the various processes involved in the business, and be able to visualize the work in question as it proceeds from stage to stage. He must, of course, know the firm's hourly and piece-work rates, and be well skilled in the methods by which they have been arrived at, so that he can have full confidence in the application of them. To him they will mean more than mere figures; they are the average products of men's and women's work expressed in money, and his task is to gauge by their aid, guided by his own experience of machines and human nature, how long the job in question will take. He should avail himself of all mechanical aids as far as possible, and make full use of ready reckoner, scales and testing machines for weight and strength of paper, slide rules for comparative sizes, calculators, etc. Tables setting forth details of all the machinery in the various departments, giving the full size of work each will take, and its output, should be prepared and be kept to hand, arranged in sequence of work to assist in tracking a job from start to finish. He should not be afraid of consulting the foremen or overseers in respect of some difficult or peculiar job. The estimator may know much, but the experience of the specialized foreman should be of great assistance to him in arriving at the correct time a job should take. Textbooks on estimating can give only an average time a process should, normally, take, very much like bogey in golf. But as the player's chief concern is his own handicap, so, too, the estimator must table for himself the firm's

handicap in many of these processes if any profit is to be made out of the job for which he is estimating.

Estimates take time to prepare, even those of small size, and great care should be taken to ensure that in the rush, which is so often necessary to meet customers' demands, materials and processes are not omitted. It may often be more advantageous to the firm to ask for an extension of time for the estimate, or even to decline to quote, than to attempt to get it done in too short a time only to find later on that mistakes have been made in its compilation.

#### FILING ESTIMATES

A reference system for tracing estimates should be established, and no estimate should ever be given verbally unless a confirmation is sent immediately afterwards. Cards such as that illustrated will be found to be useful. They should be filed away alphabetically in a suspense drawer until the estimates are settled, and then put away under headings such as, "accepted," or "declined," or "abandoned." The suspense drawer will remind the manager of estimates given which need following up by a call perhaps. It is a good plan to

<b>ESTIMATE CARD</b>	
	No.....
	Date.....
Name.....	
Address.....	
.....	
Enq.	
Result :	
○	

*(Size of card 3" × 5")*

keep a record of the estimates quoted in values under headings such as "quoted," "accepted," "declined," "fallen through." Such a record will be found to be very useful in dealing with the cost of the department.

#### FULL DETAILS OF AN ESTIMATE

Applications for estimates, emanating from order clerks and travellers, and, in fact, all enquiries, should be as complete as possible, and the estimator should go over them carefully to see that all particulars are given before starting on his work. A great deal of time can be saved in this way, since, if the estimator assumes the requirements, he may find, later on, when the estimate has been completed, that it is not what was required.

#### SUGGESTED ESTIMATE FORM

The estimate form, as shown on pages 64, 65, 66 and 67, will be a great help to the estimator. It can, of course, be adapted to suit the requirements of his firm. The main feature is that page 3 is arranged in sequence of events as far as possible, and should prevent any item or process being omitted from the preparation of the estimate. Thus the paper must be given out before ruling or printing; composing may be done before ruling, so that the ruling may be adapted to it, but ruling certainly precedes printing and binding and delivery. The details of the binding on the back page will prove helpful. The terms of the account should always be inserted on the estimate form as a guide to whoever decides what the charge should be. The envelope part of the form will contain the enquiry, samples of paper and any specimen of composition submitted, and a duplicate of the estimate as quoted to the customer. The number on this form will, of course, be the same as on the enquiry card, and the estimates will be filed away in numerical order, being easily

traceable by the cards which, as stated before, are filed away alphabetically.

#### COMPLETE SPECIFICATION WHEN QUOTING

In typing out the estimate great care should be taken to see that the wording covers all that is required—reference should be made to the quality and weight of paper, and samples submitted if possible; these should be clearly marked with a label as belonging to that estimate, thus—

(FIRM'S NAME AND ADDRESS)

ATTACHED TO

ESTIMATE No.....

so that no confusion should arise with a sample submitted by a rival firm.

#### STANDARD CONDITIONS OF BUSINESS

The Standard Conditions of Business as adopted by the Federation should be printed on the back of the estimate. When typing out the estimate it is a good plan to take two copies, one for the file and one for the traveller or person from whom the enquiry emanated. It should be a recognized custom in every firm that no prices should be quoted to a customer without reference being made first to the estimating department.

It is desirable for all estimates to be signed by either the manager or the proprietor, and when presented to him they should be accompanied with the full details so that reference can easily be made to them. In some cases where the amount is a large one, this could be left blank for the figure to be finally settled when the estimate is signed.

**ESTIMATE No.**

**NAME**

**DATE**

*(Page 1)*

DETAILS OF COMPOSITION

*(Page 2.—This page should be edged on to form a pocket,  
open at the right side, to prevent paper falling out)*

DETAILS OF MACHINING

</									



### BINDING COSTS per

[illegible]

The estimator will keep in close touch with paper merchants and agents. Samples sent out by them should be carefully inspected and filed away in an easily accessible place for future reference.

The Federation book entitled *Estimating for Printers* will be found to be of great service to the estimator if he uses it as a guide only to the formation of his own times and tables for the particular firm to which he is attached.

## CHAPTER VI

### CORRESPONDENCE

CAREFUL attention should be given to the correspondence of a firm. It is often the medium of a first introduction to a prospective customer, and much may depend upon the impression it makes. Printers often speak thus to their own clients, advising them to be very particular about the stationery and style of heading they use, whilst they themselves neglect their own and pay little attention to the way in which the correspondence is carried on. There should be in every printing firm (and for the matter of that in all businesses) a standard form for typing a letter which should be adhered to through all the departments. To-day the usual method is to have the name and address at the commencement of the letter, the nature of the business under consideration set out in the centre, and letter references as to the author and typist clearly indicated so that any replies containing these references can be immediately passed over to the right department. The concluding sentence should also be uniformly fixed and should read—

We are, or I am,  
Yours faithfully, or Yours truly,  
*For* (Name of firm in full, typed).

Proprietor, Director, or Manager (typed).

Room should be left for the proprietor, director, or manager to sign above his description which should be typed.

The accompanying illustration will show clearly what is meant by style and how the wording is displayed.

(USUAL HEADING OF FIRM)

ASA/MD.  
T. G. Brown, Esq.,  
The Moat,  
Staunton Road,  
Preston,  
TORQUAY,  
S. Devon.

14th November, 1932.

Dear Sir,

"THE ART AND PRACTICE OF PRINTING"

We are,

Yours very truly,

for SIR ISAAC PITMAN & SONS, LIMITED.

DICTATION OF A LETTER

It is not every clerk who is able to dictate or write a good business letter, and it should be the manager's task to select the most suitable for the job, or, in many cases, to undertake the work himself to ensure a careful and well-worded letter being sent.

For the greater facility of interchange between the typists, standardization of machines and of methods of taking down letters should most certainly be adopted.

SHORTHAND

The shorthand employed should be uniform throughout the house; for preference Pitman's system should be adopted, for about 90 per cent of shorthand writers use this method. The advantage of a uniform system is the fact that, in a clerk's absence through illness or holiday, reference can so easily be made by another clerk to the notes taken down. The shorthand books should all be of similar pattern, folioed, with a loose four-letter index to each carefully written up. When filled, these books should be labelled clearly on the back

with commencing and closing dates and kept ready to hand for reference.

#### TYPEWRITERS

As previously mentioned, a standard make of typewriter is most desirable. Let the management, in conjunction with the chief typist, select the machine which is most suitable, and then see that all the typists are supplied with the same make of machine. The advantages here will be apparent, for each clerk can use another machine in case of need. In passing, it may be noted that it is very useful to have a spare machine or two, so that if a repair is necessary the clerk is not at a loss for a machine.

#### CORRESPONDENCE CLERKS

The correspondence clerks can, as a rule, be drawn from the cost office staff. The work in that department, as was pointed out in a previous section, is periodical—great pressure at certain times and then a falling off—so that their time could be usefully filled up with correspondence, filing of documents and job cost sheets, estimate forms, etc.

#### TRAVELLERS' CORRESPONDENCE

The same clerk or clerks, according to the size of the staff, should be appointed to attend to the travellers' correspondence and filing, and, whilst they are out on their calls, should receive any enquiries on the 'phone from their customers, reporting to them what reply had been given in each case. By the same clerk being kept to the same set of travellers, she will soon know the work that each has in the house, and will be able to get and give an intelligent answer to any enquiry made.

#### COPIES OF ALL LETTERS

All letters should be typed in duplicate, the duplicate always being on a plain, coloured paper (say green for

general use). For economy, letters passing between departments and the office should be typed on *plain* paper either 4to or oblong 8vo size, the original on white, and the duplicate on buff paper. The original would be forwarded to the department concerned, and the buff (being known as a "copy") either filed or sent to an order clerk or traveller as information of instructions sent out from the office. No house note should be typed on paper smaller than 8vo, as it might easily get mislaid. After being typed, all letters should be carefully read over by the typist to see that no mistakes have been made in spelling or punctuation. In the case of junior typists one of the senior girls should do this and, if necessary, have the letter retyped rather than send one to be signed showing signs of many erasures. The filing of correspondence must be carefully and well done, or much time will be expended in turning up letters at some later date.

#### FILING CABINETS

Filing cabinets should be installed and definite rules made regarding their use. Each letter or order received by a firm should be acknowledged on the same day, and should be initialed and marked by the person sending the reply to show that it has been answered. The duplicate should be attached to the letter or order and when finally attended to should be filed away in one of the filing cabinets in the section to which it belongs.

Letters held in suspense requiring an answer should be kept for the time being by the clerk or traveller in a folder marked "Correspondence," and if sent into the works for their investigation the "acknowledgment" form should be detached and marked to indicate the department to which the letter has been sent. This duplicate will serve as a reminder that an answer is required. The overseers should have folders for the

reception of such correspondence to prevent it from getting lost.

#### TELEPHONE BUSINESS

A good deal of business to-day is done on the telephone, and it may not be out of place to call attention here to this system and make a few suggestions concerning it. At the commencement of this chapter it was said that the written letter is capable of making a good or bad impression on a customer : how much more, then, the human voice over the telephone.

Formerly it was thought that anyone could deal with the 'phone. To-day one realizes the far-reaching effect of a message badly received or despatched by an incompetent clerk. The size of the office and the number of calls received and sent will determine whether one has a full-time clerk on the 'phone or not.

If the work does not warrant the former, arrangements should be made for the same clerk always to attend to the 'phone, having the same understudy to help her when occasion should need it. She should, therefore, only be employed in doing such work as she can instantly drop when required to attend to a call. Assuming, on the other hand, the necessity for a large switch-board and a full-time clerk, the following remarks on the choice of an operator will apply equally to both types.

#### TELEPHONE OPERATOR

In selecting a telephone clerk, four outstanding requirements should be insisted upon—

1. A pleasant telephone voice.
2. Keen hearing.
3. Good memory for names, voices, and numbers.
4. Placid and even temper.

Tests should be carefully made before appointing

anyone to the position. Get the applicant to telephone from a department to the office, give her a complicated message to repeat, and generally test her efficiency as to numbers. It is not every voice that is suitable for the telephone, and it is worth while taking pains and trouble to secure an operator whose voice has a pleasing sound and whose calmness of temper has a soothing effect on an irritated and indignant customer. The work is most trying and somewhat monotonous and often affects one's nerves, so that good health is specially desirable.

The switch-board, if not in a separate room, should be in a corner of the office and certainly partitioned off from the rest of the room, and well lighted.

#### TELEPHONE MESSAGES

All calls not capable of being put through to the required person should be carefully noted, and any message written down and repeated to the caller. The

<b>URGENT—TELEPHONE MESSAGE</b>	
From.....	Date.....
Time received.....	
Instructions :	
Operator.....	

message taken should be forwarded to the department concerned as soon as possible. It should be on a coloured slip to attract attention and duplicated by means of a carbon sheet.

#### MESSAGES ARE CONFIDENTIAL

This slip, when attended to, would be filed either with the correspondence or under the job cost order number

to which it referred. The operator occupies a confidential position, and strict secrecy should be observed regarding all she hears and says, especially when dealing with calls from the proprietor or manager. When asked by a traveller or clerk for a number, if the line be "engaged," that answer should be sufficient and the only one given. It is not necessary to mention the name of the person or firm to whom the proprietor or manager is speaking.

These remarks apply in somewhat similar manner to the typist, who may often be engaged on private and confidential work. All finished correspondence should be kept face downwards on her desk or in the correspondence basket until taken to be signed, and if no one is in the room, then left still face downwards to prevent its being read by any unauthorized person.

#### POSTAGES

In all probability the postage of the whole of the firm's correspondence will be entrusted to the cost clerks' department.

Stamps will be purchased by them and they will be held accountable for their use. The stamps should be obtained in rolls of varying values and used in stamp machines which record the number of stamps used. Stamps of higher values should also be held in stock to be given out as required. Records should be kept of the number of letters and circulars, etc., despatched at each time of posting, together with the value of the stamps used, so as to balance with the amount purchased.

These clerks should make themselves thoroughly conversant with the Post Office rules and regulations.

It should be a recognized rule, and one most rigidly enforced, that no person, manager or clerk should be allowed to buy a stamp from this department.

## CHAPTER VII

### THE WAGES CLERK

THE wages clerk or clerks play an important part in the office organization of a printing firm, for their duties consist in making up the wages to be paid to the workers weekly, compiling them from many sources. The old-fashioned method of the overseer being responsible for the compilation of his own department's wages, and also paying the men himself, has long gone by the board. This system often led to fraud and dishonesty. All transactions dealing with money require to be safeguarded as far as possible. It is quite true that in business someone must be trusted, but a firm should arrange for the least number of persons to have the handling of money.

#### TIME CARDS

The time cards now so universally used, as punched by the work-people and in charge of the time-keeper, are the basis upon which are built up the week's wages. These cards are sent in to the wages clerk at the end of the firm's week. If payment be made on a Friday evening, the week for calculating wages would close on Thursday afternoon for time workers and Thursday evening for piece workers. Many firms arrange to deduct from the weekly wages certain subscriptions to various funds, savings banks, etc. These calculations and deductions will be the more accurately dealt with by wages clerks, who are accustomed to figures, than by the time-keeper. The following pattern of a Wages Book will be found to be most useful. It can, of course, be adapted to suit the needs of any business.





Summary at end of week's wages would be written out as shown on p. 78.

If the business be a large one it is well to have two books, half the employees being entered in each. This will enable two clerks to work on the wages at the same time. The number of pages should be sufficient to last twelve months, and the books should be provided with a lock and two keys: one key to be kept by the wages clerk, and the other by the person who counts out the money for the individual payments.

The following will explain how the book is made up—

Cols. 1 and 2. Number and name of employee.

Col. 3. Weekly wages agreed to be paid the individual (this should be the same as on the Engagement Card).

Col. 4. Lost time in hours obtained from the Time Card. It is usual to allow a certain number of minutes' grace for the week, say up to 29 min. no deduction, over 29 min. and up to 59 min. half an hour would be deducted as lost time.

This deduction would be at the hourly day rate, based on the week's wages for 48 hours.

Col. 5. Turns the hours lost into money.

Col. 6. The employee's insurance, which he pays.

Cols. 7, 8, 9 are for the hours of overtime which are calculated out at different rates and converted into money in Col. 10.

Col. 11 is the total money earned after lost time, etc., have been deducted, and overtime added.

Cols. 12 and 13. The savings agreed by the employee to be deducted from wages.

Col. 14 will be the actual amount paid to the employee.

Col. 15. The insurance paid by the employer.

In the case of a piece worker the total earned will appear in Col. 3, and against his name, before the wages, the letter "P" will be added to notify that he is a piece worker. Columns 4 and 5 will not be used, but all the others will as in the case of a time worker.

The wages clerks should have wages tables to assist them in their calculations, and, if the number of employees warranted it, adding machines as well would

be of great utility and a saving of a large amount of time.

The totals of columns 12 and 13 would be paid to the various funds named, those of columns 6 and 15 would be the amount of insurance money required for the week, and the total of column 14 the actual wages paid to the employees. A slip, therefore, would be sent to the cashier's department, made out as under, and signed by the wages clerk.

WAGES WEEK ENDING.....			
Col.			
14.	Wages		
6	} Insurance		
15			
12.	Sick Fund		
13.	Social Club		
Wages }			
Clerk }			
	Total .		

This total would represent the full amount required for the week's wages, and for this a cheque should be drawn for the exact amount. The amount of wages, column 14, would be given to the person appointed to count out the money (say the ledger clerk) for the individual payments, and when these were allocated according to the wages book there should be nothing left over, which, to an extent, is a check that the correct amount has been set aside for each person. The money for insurance, 6 and 15, would be used to purchase the exact number of stamps required, and these the wages clerk would purchase and attach to the cards. The remainder of the cash, columns 12 and 13, would be paid over to the officials of the funds concerned.

The actual payment of wages to the employees should be done by the proprietor or manager, or some

other person in authority, and he should initial the wages book as soon as he has paid out the money. This system minimizes the risk of fraud or collusion.

The wages clerk will have to be well versed in the various trade union customs dealing with wages, as to breaks, cuts, meal hours, etc., and it will be advisable to have all these very clearly set out for reference.

Should any employee dispute the amount paid him as being incorrect, the matter should be settled by agreeing with him the amount he has actually been paid, and promising to look into his claim the first thing next morning. This will give time to consider the claims put forward without hurriedly assuming that they are either correct or the reverse, only later on to find out that one has conceded a point about which there has been some considerable difference of opinion.

The simplest method of paying the employees is to have the money put up in envelopes. These envelopes have superseded the small, round, tin boxes. They should be large enough to take notes flat and be made of stout, cloth-lined paper, with a deep flap to prevent the money falling out, and need not be gummed. On the face would be the number and name of the worker. The envelopes should be arranged numerically, and the employees instructed to come to the pay office in that order. After withdrawing their money from the envelopes the employees should drop these in a basket so that they can be used again. Any envelopes not claimed should be returned to the cashier's department, a note being taken of it by the wages clerk.

Where the Federation costing system is in force the wages clerk will have to make a return to the costing clerk of the wages paid in each department separately, to enable him to arrive at the wages costs for the week. This would be as it appears at the foot of the Department's Wages in the wages book.

## CHAPTER VIII

### PURCHASING ROUTINE

#### MATERIALS: OUTWORK ORDERS

##### BUYER AND RECEIVER

THE purchasing of materials in a business, whether it be large or small, is a matter of great importance to the concern as a whole. One wants to buy in the *cheapest* market and, at the same time, to have perfect confidence in the *quality* of the article purchased.

In a printing business the supplies needed are very varied, and considerable skill and ability, combined with a good technical knowledge, are the essential qualifications for the successful purchasing of such supplies.

If the business in question is small the proprietor, or manager, would probably do the buying himself. He would interview travellers, obtain prices, and settle where the purchases should be made.

Many firms allow the overseers to do their own buying subject to the order being signed by the manager.

This, as the business grows, is found to occupy a good deal of the overseer's time which might be more profitably spent in looking after the immediate needs of his own department, and seeing that the work there is produced under economic and efficient methods.

##### A BUYER NECESSARY

A buyer, therefore, has to be appointed to undertake this important work, and in most large firms this has been found to be the most satisfactory method, and, in the long run, a truly economical one.

A buyer must be of high character, and possess

technical ability. Though, to a large extent, "*bribery*" is a thing of former days and can now be dealt with very seriously by law, the position of a buyer is often one of peculiar temptations and should be filled by a man of sterling quality and honesty.

It should be clearly stated when engaging such a man that all "*gifts*" from a firm with whom he is likely to do business are strictly forbidden. This would strengthen his position and soon become known by the trade, who would welcome the fact that all quotations given would be fairly considered.

#### PLACING OF ORDERS

The two chief factors that govern the purchase of an article are *quality* and *price*—a third may often be introduced, and that is *time*. The *quality* and *price* may be all right, but one would naturally expect to pay more for an article required in a specific time than if manufactured in its ordinary course. All these points have to be borne in mind before placing an order.

A definite rule should be that "no order for goods whatsoever shall be recognized unless made on the proper *order form* and *signed* or initialed by the *buyer*."

Verbal instructions are always liable to errors and misconstruction, and too much care, therefore, cannot be given to the enforcement of this rule, a "*written and signed order for all purchases*." The order form should clearly state the full particulars of the article required and the price to be charged, and might be as the pattern set out for all general orders.

A convenient size would be crown oblong 8vo, two orders to view, perforated, interleaved with plain paper for use with a carbon sheet, and, on the back of the plain paper, printed as shown on page 84, to serve as a record of the deliveries, prices, and dates when goods were received and invoices passed.

## ORDER FORM

No.....

Dept. No.....

Date.....

(NAME AND ADDRESS OF FIRM)

To Messrs.....

Please supply the undermentioned goods, quoting the above Order and Department Numbers, as per your letter/quotation No.....

Quantity	Description	Price	Discount
----------	-------------	-------	----------

(Crown oblong 8vo,  
2 to view.)

For (Firm).

*Buyer.*

## BACK OF PLAIN SHEET

## DELIVERIES

Date	Quantity Received	Price	Amount of Invoice
------	----------------------	-------	----------------------

Invoice passed.

## DELIVERIES

Date	Quantity Received	Price	Amount of Invoice
------	----------------------	-------	----------------------

Invoice passed.

The orders would be numbered in duplicate and bound quarter-cloth flush, in books of, say, 250 orders. The department number will enable the goods, when delivered, to be sent to the department without delay.

#### PAPER ORDERS

For the ordering of paper the wording should be varied and read as under—adopting the mille (1,000) as the standard in place of the old-fashioned ream.

---

Please supply or make as per your Quotation No.....

Quantity in Milles	Full Description	Size	Weight per Mille	Price per lb.	Dis- count

Delivery wanted.....

---

The goods when delivered would be received by the time-keeper and forwarded to the department concerned, which should have them carefully checked.

#### PASSING OF INVOICES

The invoice for the goods, after being approved, should be initialed by the checker and overseer, and forwarded to the office, where all extensions should be verified and discounts deducted.

Each overseer would have a rubber stamp with which to stamp his invoices as under—

Department	Job Cost Sheet Number	Quality and Quantity	Extension Checked	Manager's Approval
		Checked by		
Analysis Letter	Buyer	Passed by Overseer		

The following will explain its use—

Col. 1. Will be for the Department Number and the analysis letter of the purchase. (The use of this letter will be explained later on.)

Col. 2. Job Cost Sheet Number if the purchase is for a job direct.

Buyer's initials approving of the purchase.

Col. 3. Goods received, checked as to quality and quantity by checker, and passed by the overseer.

Col. 4. Extensions checked in the office.

Col. 5. Manager's initials for approval of the passing of the whole charge.

No invoice should be posted by the ledger room unless properly passed as set out above, and bearing the manager's initials. In making enquiries for estimates great care should be observed by the buyer to see that all particulars of his requirements are given, and that those quoting do so on the same lines as one another, so that proper comparison can be made with each. Usually, unless a very large order is pending, it is sufficient to select three firms from whom to ask a price, and to give them, if possible, with the particulars, a sample of the material required.

A careful examination will have to be made of samples submitted with their quotations.

Paper must be tested for quality, opacity, and strength; the buyer must have a practical acquaintance with scales and testing machines, and be well versed in their various uses. The micrometer will assist him in comparing bulks. Blottings and art papers will need watching to ensure that they match the required standard.

The buyer must also be acquainted with the standard rules governing the making of paper, and make due allowances for shorts and overs and variation of weights allowed. Cloth will be examined minutely by the aid of a magnifying glass and calculations made as to the number of threads each way to the inch. Leather is inspected for finish and thickness and freedom from holes.

Half-tone blocks, if not made on the premises, must be tested for screen, bearing in mind the paper on which the illustrations have to be printed.

Whilst the department will be mainly responsible for the approval of the goods purchased as meeting their requirements, all complaints as to quality, etc., will have to be taken up by the buyer with the firm from whom they were purchased, and to enable him to do this successfully he must possess a general knowledge of their manufacture, and the purpose for which they are intended.

The buyer should keep a card index of all purchases under the names of the *articles*, recording the date, the firm from whom purchased, the price and discount allowed, and any remarks respecting the consignment. This index will be found to be most useful when orders have to be repeated. All correspondence connected with the transactions, and the accepted quotations, would be filed away in a cabinet, again under the name of the article.

Catalogues, price lists, etc., should be carefully gone through so that one's knowledge of new ideas may be

kept up to date, and these filed away under the subject matters to which they refer.

Samples of papers, cloths, and other materials should be tested as to their various merits. It is often very advisable to send such samples into the various departments, asking them to make some use of them and to report to the purchasing department their opinions of them.

#### INDEX CARD FOR DETAILS OF PURCHASES

PURCHASES				ARTICLE.....		
Date	Firm	Order No.	Quantity	Price	Disc.	Remarks

This card should be 5 in.  $\times$  8 in. in size and printed both sides alike, head to tail when backed up. It will in time form a valuable record of the prices paid for a specific article and prove to be of great assistance when a future order is being placed.

#### INTERVIEWING TRAVELLERS

Much of the buyer's time will be occupied by the interviewing of travellers, who should at all times receive a courteous reception. One can never tell when their services will be required, and a kindly though brief interview will do more to facilitate a later enquiry than a curt message by a clerk, "Nothing to-day; the buyer's too busy to see you." If it be quite impossible for the buyer to grant an interview to a traveller, his

assistant could often get particulars of his goods and ask him to call again at some future date.

Some new make of cloth or novelty in paper or machine improvement may be adopted by a rival firm, and, when the buyer's attention has been called to the fact and the question raised as to his lack of knowledge of the subject, investigation may show that he was too occupied to see the traveller when he called to show his sample, and missed a fine business opportunity.

It will be advantageous to the firm if the buyer periodically visits some of the factories from which his purchases are made. It will afford him an insight into the difficulties with which they have to contend, and the knowledge thus gained will be of value in advising the departments of the most suitable articles for their own requirements. The proprietors of paper mills, leather works, and machinery shops are to-day only too willing to show their premises to such an enquirer, and gladly welcome the opportunity of placing their resources at a firm's disposal.

#### MACHINERY PURCHASES

The purchase of machinery will be an important part of the buyer's work.

An overseer asks for a certain new machine, and after due enquiry as to its necessity by the manager and proprietor, such purchase is deemed advisable. The matter will be referred to the buyer for him to obtain prices and to report generally on the machine in question.

He must, therefore, see the machine himself, and, if arrangements can be made, visit some other friendly firm who are using a similar machine and gain their opinion of it. He must get full particulars as to size and output, floor space the machine will require, its weight, and the horse-power to drive it, and compare one make of machine with another and advise

the firm which he considers the best for their own purpose.

Finally, before the order is placed, the manager, proprietor, and overseer should inspect the machine together, so as to be quite satisfied with his selection.

#### OUTWORK ORDERS

These "orders placed with a trade house" are usually put in hand by the order clerk after a price has been obtained by the buyer. Where there is a standard price, or the job is a repetition one, it is not necessary, of course, to obtain a fresh quotation each time, but in placing the order the price last charged should always be indicated so as to call the firm's attention to it in case any alteration has taken place since the previous order was given. The order clerk will be responsible, in passing the invoice, for seeing that the quantity and price are correct, and he will initial the invoice to that effect, and put the job cost number on as well to indicate to the office that the charge has been transferred.

The buyer will keep an eye on such ordering, as he finally passes the invoices himself, and he may from time to time have the prices checked to ensure that the firm is buying in the best market.

#### ANALYSIS OF PURCHASES

A "purchase analysis book" will be found to be of great advantage to the buyer, especially if desirous of placing a large order on a favourable market. As the name implies, all the purchases are analysed under a letter when posted into a purchase book. This letter is obtained from the passed invoice and is approved by the overseer under his department number to indicate to which category the article in question belongs. All the purchases for *each* department are tabulated out into groups of similar character and then given a letter.

By this means the total yearly purchases of each group of articles such as coal, rags, gold, strawboards, etc., are easily ascertained, and comparisons made from year to year. The buyer, thus knowing his average yearly consumption, is able to purchase when prices are low.

While it is desirable to give the buyer as free a hand as possible in making his purchases, it must always be clearly understood that he is under the control of the manager, who, of course, is responsible to the proprietor for the factory or works side of the business. Naturally, the buyer will often consult him and seek his opinion, and on many occasions the manager's recommendations will outweigh his own.

The buyer's holiday will afford the manager an excellent opportunity for coming into closer touch with the work of the purchasing department. He should, if possible, interview the travellers who call, and all orders placed should be under his immediate supervision and decision.

## TRAVELLERS

MUCH has been written on the subject of Travellers and Salesmanship, and many are the opinions that have been expressed from time to time of the essential qualifications necessary to become expert in this all-important side of a business. There are, unfortunately, no "royal roads" upon which one can walk and in due time reach one's goal and become a really successful traveller.

While technical training will do much to assist him, he must possess that "gift" or "flair" of *personality* which will commend him to all with whom he may come into contact.

The task before him is an arduous one, and often means disappointing work. The printer's traveller

usually has no goods to sell as such. His is a manufacturing business, and he has to find out the requirements of his customer and translate them into suggestions and ideas. Too often the customer has no clear conception of what he really requires, and it is a very difficult position in which the traveller finds himself, calling for great tact and careful handling. Whilst the control of the traveller will be outside the jurisdiction of the manager, the latter must afford him all the assistance he possibly can and place all the firm's resources at his disposal. On him, to a large extent, depends the progress of the business, and every encouragement should be afforded to the traveller. Of course, certain restrictions should be imposed upon him with regard to the works, and it should be very definitely understood that no instructions are given to the works overseers by a traveller without the consent and knowledge of the manager. On the other hand, it is advisable for him to be allowed occasionally in the factory to see the progress of his jobs, and to come into contact with the overseers.

Mutual suggestions may eventually lead to improvements in method and economy in production to the firm's advantage, and, as it is the traveller who has to face a customer's criticism in the first instance, such arrangements will be of untold advantage. Again, by these means the traveller will realize that his firm is anxious to afford him all the help and assistance that it can, and the confidence thus gained will be a great asset in his work. Apart from the technical side of the business, it is well for a traveller to possess a fair understanding of "costing" and "estimating." He should not be allowed to give quotations himself, but his knowledge of the firm's methods of costing and charging will help him when dealing with a customer over the question of prices.

A traveller is generally paid by results, but it is often considered better to pay a fair salary and a small commission on turnover, than the reverse, for a man, free to a large extent from financial worry, is the better equipped for the difficult task of seeking orders.

It is customary, when engaging a traveller, to make special agreements with him, and it is most desirable that these should be clearly set out, stating the precise nature of his duties, his salary, commission, etc., and any such arrangements as to calling on customers as the firm desires.

The important subject of printers' salesmanship is fully dealt with in Section V of this volume.

## CASHIER'S AND LEDGER DEPARTMENT

THE Cashier's and Ledger Departments will usually be under the immediate control of the proprietor rather than the manager, the latter being more responsible for the "works" side of the business. The offices should be kept separately; that is to say, the cashier should deal with the receipts and payments of all moneys; while the clerk in charge of the ledgers would post all accounts from the day books and despatch all statements to the customers, being notified by the cashier when payments were made.

The Loose-leaf System has done much to revolutionize the old ways of account keeping, and has proved its value and economy in all classes of businesses. When carefully worked, in the hands of a reliable and trustworthy staff, it is as safe a method as can be devised.

Two fundamental rules should be laid down and strictly enforced—

(1) "All moneys *received* must be paid into the Bank"; and

(2) "All *payments* must be made by cheque."

Under no circumstances should *cash received* be used to *pay* accounts. It will only lead in the end to confusion and be a source of great trouble. Receipts should be given for all amounts received, and it is well to have a special form of receipt printed which could be attached to the Statement or Invoice. These receipts should be in book form with a counterpart, and numbered so that they can be easily checked with the cash book. In most firms it is customary now to *duplicate* the invoice on to loose sheets which in turn become the "Day Book," and so save the necessity of posting them into a special day book; entries from these sheets are made directly into the ledger, and a good deal of time is saved thereby.

If the account has to be rendered in *detail* at the end of a quarter, all particulars can be obtained from the "Invoice Day Book."

*Petty cash* payments should be made from a petty cash account (for which a cheque should be drawn, say, £10 at a time), and balanced up weekly.

A *voucher*, as set out below, authorizing the payment of each item should be given, and at the end of the year the vouchers would be analysed by the department numbers, so as to debit the particular departments with their purchases.

#### PETTY CASH VOUCHER

Dept. No.....		Date.....			
Quantity	Description		Cost		
			£	s.	d.
Received.....		Approved.....			

## BOUGHT JOURNAL FOR DEPARTMENTS

## Bought Journal

## Right Page

Date	Firm	Ledger Folio	Discount	Net Cost		

## Departments

## Left Page

Paper		Comp.		Printing		Binding		Ware- house		General	

Headings according to the departments into which the  
business is divided.



according to the way in which it was desired to divide the purchases.

Each item for either of the books kept would be posted in the Bought Ledger. A similar method for small firms would be to have a rubber stamp, in the form shown below, with which to mark the statement, showing to which departments the debits belong, and to enter only the total amount in the Bought Journal and Bought Ledger.

Care would have to be taken to file away all the invoices with the statement attached for the audit.

STATEMENT CHECKED FOR PAYMENT				
Debit	Bought Ledger Folio	Amount		
		£	s.	d.
Paper . . .				
Composing . .				
Printing . . .				
Binding . . .				
Warehouse . .				
General Expenses .				
Bought Journal		—	—	—
Total . . .		==	==	==
Checked by.....				

The Bought Journal analysis side would then contain only the total purchases of the departments for the month or quarter according to whether the statements were rendered monthly or quarterly.

#### PLANT

A separate account should be kept for each department for the purchase of plant, and all invoices when passed should contain the department number

and the word "Plant." Plant means *new* purchases of materials or machinery. All repairs and renewals are debited to the working expenses of the departments and must not be treated as plant; the invoices for these items would be passed in the ordinary way, and analysed under their particular letter. Each machine plant should have its individual number. This number should be permanently affixed to the machine, so that a complete record of its life can easily be obtained. A card, such as that set out below, will be most useful—

<b>PLANT RECORD</b>		
		Date.....
Dept. ....	Type of Machine.....	
		No. of Machine .....
Description :		
		Cost
Bought of.....		
Maker's No.....		
Date of Purchase.....		Valuation—
Driven by .....		Date.....
Motor No.....	H.P.....	Value .....

The reverse side would be used to give the details of repairs, etc.

If no record has been kept of one's plant, it should be valued and a card, as suggested, made out for each machine, giving its value and the date of valuation. When a machine is sold or "scrapped," the card should be transferred to the "dead" drawer, in order that only existing plant appears in the "live" records. It is

**Repairs**

Date	Particulars	Cost		
		£	s.	d.
	How disposed of			

also advisable not to repeat a number for a new machine, but to let the number pass out with the old one. Invoices for repairs, whether done outside the firm or by one's own engineer, should be passed bearing the particular number of the machine so that the cost can be recorded on its card.

**PLANT INVENTORY**

It is well to keep an inventory of all plant, as, in case of fire, it will be found useful in negotiating a claim. Such inventory should, of course, be kept in a fire-proof safe quite apart from the index record cards.

For the welfare of a business it is most necessary to see that the plant is well maintained; not only should the plant be kept thoroughly clean, but all minor defects repaired at once so as to get the greatest efficiency from the machines. Old machines should be carefully watched, as often it will be found economical to scrap such and purchase new up-to-date ones with the latest improvements and higher outputs. These points will engage a great deal of the proprietor's time, but he will find in the long run how really essential such investigation is, if his firm is to hold its own and be able to compete successfully in the open market.

Before purchasing a new kind of machine, every enquiry should be made to ascertain whether there is likely to be sufficient work to warrant such an expenditure. It may often prove a better proposition to stay one's hand, and thus save one's pocket, and to farm the work out to a trade house. Idle or only part-time running machinery is an expensive item, and will soon eat up all the profits earned by the other departments. Depreciation of plant is a matter of great controversy in the printing trade. Some firms write off 10 per cent on *original* value, others on *diminishing* value; while others, again, gauge the *life* of a machine and arrange to wipe out its value in that allotted time. The proprietor will settle which system he thinks most suitable for his own business, and make use of it accordingly.

Plant wears out and must eventually be replaced, and it is only by providing for its renewal, making due allowance for depreciation, that, when that time arrives, the capital required is available and ready to hand.

SECTION II  
THE WORK OF THE ORDER CLERK  
BY  
J. FULLER



## CHAPTER IX

### THE WORK OF THE ORDER CLERK

AN order clerk must have considerably more than a passing knowledge of everything connected with the printing office, and more particularly with the possibilities and limitations of the equipment of the particular printing business with which he is associated. He should be business-like, methodical, and of good address, possessed of sound common sense and tactful in all his dealings. Upon him will devolve the receipt of instructions—first-hand from the customer, or second-hand from the traveller or estimating department, and through the medium of the post; from the mass of detail, he is to convey intelligent working instructions to the departments. To enable him to do this he will be provided with an order book and suitable forms such as the set of triplicate forms following page 107. Many progressive firms have adopted the card-index system (see example on page 106).

Owing to the disparity in the size of the office and the widely differing allocation of duties thus entailed, it is impossible to indicate a list of duties that would accurately describe his work. The following, however, are generally understood to come within his routine—

To receive and collect instructions by post and as the result of interviewing customers, travellers, etc.

To ascertain if the work has been estimated for, or has been done before, i.e. repeat work.

To obtain a reference from the counting house in the case of repeat work.

To book up the order in the order book or on the card index.

To make out the work ticket, paper ticket, job cost sheet, etc.

To issue these forms to the various departments with verbal explanation if necessary.

To put in hand all outside work according to the requirements and resources of the office, such as photographs, sketches, original and duplicate blocks, plates, die-stamping, bags, envelopes, etc.

To acknowledge the receipt of all orders, blocks, photographs, sketches, etc., and handle such correspondence involved in accordance with the size and routine of the office.

To forward the proofs, and to follow up the work through the various departments, seeing that proofs and completed work are delivered to time and customers' requirements.

To make considered promises of delivery after due consultation with the responsible heads of departments.

To take particular care to avoid all doubtful work, especially that of a nature likely to lead to bad debts.

#### RECEIPT OF INSTRUCTIONS

A good order clerk will, when taking instructions, visualize the work, item by item, and obtain, by suitable conversation with the person ordering, the fullest detail necessary to interpret his wishes in a practical manner. (An excellent plan is to keep handy an estimating blank, similar to form number E. 3, and to go over the particulars *seriatim* so that nothing be missed.) He will skilfully advise and lead his client along the best lines, as the customer is often vague and does not know what he wants; then, too, it is advantageous that the copy should be read over to see if there are any points that require elucidation. The copy should be typed or written upon one side of the paper. Where very poor





manuscript copy is presented, the advantage of having the copy typed, with the eventual saving in corrections, should be pointed out. Advice upon the character of sketches, size and style of illustrations, the choice of type, and other similar details should be given with caution, always bearing in mind the resources of the office. It goes without saying that such details as the name, address, and other particulars of the customer to whom the goods are to be delivered, to whom they should be charged, and when they are finally required, are of vital importance. This brings us to the question of promises relating to proofs, delivery of work, etc. Every business firm which values its reputation must keep its promises, and due caution must be taken not to promise that which cannot be fulfilled. With this in view, careful consultation with the departmental heads should at all times form the basis for a promise for work of any dimensions. A schedule of work ordered, incomplete and in progress, and to be delivered, with the date required, must be kept, so that the order clerk can tell at a glance how it stands, and when it is necessary to institute enquiries.

It should be noted that most of the disputes relating to accounts are due to misunderstandings in taking the order. The first duty of the order clerk before accepting an order from a new firm should be to satisfy himself in regard to the customer's credit. The regular customers of the firm will be known to him, but he should not be permitted to put work in hand for strangers of a value exceeding, say, £5. Any work likely to exceed that amount should not be commenced until satisfactory references have been obtained.

#### ESTIMATED WORK

Before putting work in hand it is necessary first to ascertain whether an estimate has been given. Every

assistance will be given by the estimating department or clerk, and it is usual for the estimate itself to be loaned for particulars to be extracted. It is of the greatest importance that the estimate shall be faithfully adhered to; all departures from it should be immediately notified to the responsible estimating clerk, so that extras may be queried and quoted for, if considered necessary, before proceeding with the additional work. As a general rule it is not expedient for the order clerk to quote prices to customers; in fact, in many Houses it is forbidden.

#### BOOKING UP THE ORDER

The card index or the order book, whichever is adopted, consists of consecutively numbered divisions arranged to receive sufficient details of each order to identify it, the order subsequently bearing the said number until its completion. Every item of cost

Date	Work Ticket No.	Customers' names and their Order Nos.	Description of Job	Day Book Folio

A SUITABLE FORM OF INDEX CARD

incurred under that number will be charged to that number. The best system is probably the triplicate or quadruplicate order sheet (see form number 12), consisting of order sheet, paper ticket, job cost sheet, and a fourth sheet for dispatch or other use. These triplicate or quadruplicate sets are typed by the order clerk in one operation with carbon sheets between. The advantage of this system is the ease with which three or four departments can simultaneously be notified of the receipt of the order, and, provided that the top copy is correct, there is no danger of mistakes in copying. A drawback is the fact that corrections must be made upon all four sheets and that the omission to do so will result in mistakes.

#### ACKNOWLEDGING THE ORDER

The prompt acknowledgment of through-the-post orders is essential to any well-conducted business. Advantage can be taken of the letter of acknowledgment to point out any discrepancies between the order and the estimate, defective or missing copy and blocks, the omission of colour guides, and requests for the elucidation of obscure points.

The work ticket with the copy securely attached or contained in a large, stout, paper bag, together with the dummy, file copy, etc., must be handed to the first department concerned as soon as possible, and accompanied by the same careful explanation of special points necessary for clear working. In fact, it is always best that verbal as well as written instructions should accompany the order to ensure that there is no possibility of their being misunderstood. The paper ticket must be delivered to the paper department at once, especially if the paper is to be made or has to be specially purchased. Delay may occur in regard to the material if this is not done. Omission to attend to the

Date Received\_\_\_\_\_

Form

W.T.

12.

No. \_\_\_\_\_

Customer's Name \_\_\_\_\_

Proof Required \_\_\_\_\_

Quantity \_\_\_\_\_

Size \_\_\_\_\_

D.B. (or Led.) Fol. \_\_\_\_\_

Description \_\_\_\_\_

Entered \_\_\_\_\_

Paper, etc. \_\_\_\_\_

Ink \_\_\_\_\_

Delivery \_\_\_\_\_

DEPARTMENTAL INSTRUCTIONS—

Ink—

@

£

s.

d.

\_\_\_\_\_ lbs. \_\_\_\_\_

\_\_\_\_\_ " \_\_\_\_\_

\_\_\_\_\_ " \_\_\_\_\_

Varnish—

\_\_\_\_\_ pints \_\_\_\_\_

Materials Used—

£

s.

d.

Cloth \_\_\_\_\_

Leather \_\_\_\_\_

Sundries \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DATES RECEIVED BY EACH DEPARTMENT

Department	Initial	Date

Value of Standing Matter      £        :        :

SENT OUT                      RETURNED

1st Proof \_\_\_\_\_

2nd Proof \_\_\_\_\_

ON COMPLETION when job is packed for delivery, this form must be dated, initialed by Packer, and passed into Cost Office.

Delivered \_\_\_\_\_Initials \_\_\_\_\_

N.B. for STAFF.—This Work Ticket is part of the machinery for working the Federation Cost System, and it is **important** that it should be handed in with “copy.” The Job No., the name of the Customer, and the correct time taken to complete each operation should be entered on the Daily Docket. “The House” anticipates the hearty co-operation and goodwill of everyone connected therewith.

Published by permission of the Federation of Master Printers (Costing Dept.).

(Reduced from Large Post 4to—“Top sheet”)

# PAPER TICKET

Date Received\_\_\_\_\_ No.\_\_\_\_\_

Customer's Name \_\_\_\_\_ D.B. (or Led.) Fol.\_\_\_\_\_

Entered \_\_\_\_\_

Description\_\_\_\_\_ PROOF WANTED \_\_\_\_\_

DELIVERY \_\_\_\_\_

Quantity\_\_\_\_\_ Size\_\_\_\_\_ Customer's Order No.\_\_\_\_\_

Paper, etc. \_\_\_\_\_

Ink \_\_\_\_\_

PAPER USED_____Reams_____Quires	Size _____Weight_____	TOTAL COST £ : :
Sheets to a ream_____Size_____Copies per sheet_____	Price of Paper USED_____	
Stock No._____Rack No._____Price_____	Date of Purchase_____	Entered on Cost Sheet
Warehouseman's signature_____Date_____	Previous Price_____Date_____	
	Latest Price_____Date_____	
	Entered on Stock Card_____	

PAPER USED_____Reams_____Quires	Size _____Weight_____	TOTAL COST £ : :
Sheets to a ream_____Size_____Copies per sheet_____	Price of Paper USED_____	
Stock No._____Rack No._____Price_____	Date of Purchase_____	Entered on Cost Sheet
Warehouseman's signature_____Date_____	Previous Price_____Date_____	
	Latest Price_____Date_____	
	Entered on Stock Card_____	

Date given out	Given out by	Stock No.	Quan- tity given out	Cost price	Date of pur- chase	Quan- tity in box or packet	Entered on Stock Card	Total Cost	Entered on Cost Sheet
				per					
				per					
				per					
				per					

ordering of the stock should not be tolerated. The job cost sheet must be forwarded to the costing department to enable the costs to be recorded as they are received.

#### KEEPING TRACK OF WORK

It is essential to adopt a regular system of following work up through the various departments, especially in a large business where there is a possibility of its being hung up or put upon one side. Even when work has been completed in one operation, it is not an uncommon experience to find that instead of being forwarded to the next department it is laying on one side unheeded in favour of another job. For example, with dated work, the order clerk knows from his notes on what date the proof must go out. He will not, therefore, wait until that evening arrives before he institutes enquiries as to the possibility of its being ready to time.

#### OUTSIDE WORK

Many large businesses are practically self-contained, but the smaller office is not so happily placed, and may have to send artist's work and photographic reproductions, lithographic work, original letterpress blocks, duplicates, electros, stereotypes, bags, envelopes, die stamping, cuttercrush work, and many other items, to Houses who specialize in such items. The handling of this outside work is a section of the duties of the order clerk. He will first have to obtain a price in accordance with the estimate, put the work in hand, and see that it is duly received in compliance with the said order and in time for inclusion with the work that is carried out by the firm itself. Incidentally, too, he will be responsible for the passing of the invoice for this outside work.

It has been said that the outside work gives the order clerk greater concern than the work completed by the House. Its control is naturally more difficult, and much

No. ....

Customer's Name ..... Proof Required .....

Quantity.....	Size .....	Entered .....
---------------	------------	---------------

Description	Amount	Account
...	...	...

Paper, etc. ....

Ink. .... Delivery .....

[illegible]



more has to be done upon the telephone. It is evident that the work that of necessity has to be entrusted to outside firms is as important as that which is being completed upon the premises. In this connection, there are firms who cater solely for the trade in regard to this work, and, in fact, many of them give yeoman service to the printer.

#### DESPATCH OF WORK

While this is the work of the despatch department, the order clerk will be well advised to keep in close touch with it. Delivery instructions and details of packing and banding, with the destination to which the goods are to be delivered, will have been noted upon the work sheet, but it is up to the order clerk to keep himself acquainted with the arrival of each batch of goods to that department, and to see, as far as practicable, that they actually leave at the stipulated time and date.

#### AVOIDANCE OF ERRORS

The question of the responsibility of the customer in the matter of errors is a fruitful source of unpleasantness. It often happens that a mistake does not come to light until the work has been circulated by the customer. The latter is naturally indignant, and probably writes impatiently blaming the printer. If the error is due to carelessness within the firm, the ultimate result is that the work has to be reprinted at their loss. But if the mistake is due to the customer's copy, the question arises as to how far the printer is also to blame for not noticing the error and for allowing it to be printed. Some printers think, or appear to think from the attitude they adopt, that it is an achievement to find that the error was due to the customer and that it can be put down to the latter's carelessness or negligence, but it is more to the credit

of the firm to exercise such careful scrutiny that the class of error to which we refer is noted and corrected before the work is printed. This surely is a part of the service that is looked for in a good order clerk and forms a feature of the efficiency of a good firm.

#### RETURN OF ORIGINAL SKETCHES AND PHOTOGRAPHS, BLOCKS, PLATES, DIES, ETC.

The supervision of this detail generally devolves upon the order clerk, and, without laying down too hard and fast a rule, it is not usually deemed good policy to return such items unless they are specially demanded by the customer, and provided always that they are his property and that he is entitled to them. It is argued that they constitute some, even if slight, hold upon a customer's work for future editions or copies, and that to return the blocks, etc., with the completed work is equivalent to inviting him to try another printer the next time he is ordering.

#### ASSISTING THE CUSTOMER

The order clerk, it must be clearly understood, has a great opportunity to assist the customer, and should always have a well of practical suggestions ready to improve the work and, incidentally, add to the profit and returns of the House. Nothing will impress the customer with the service that a firm has to offer more than an order clerk who not only knows what he is talking about, but can make a lay-out on the spot and can assist him with ideas for his advertising matter. The preparation of suitable copy is an everyday occurrence in the most progressive printing firms. To them nothing comes amiss.

Work should never be turned away, even if the firm is not equipped for it, more especially when it is offered by a regular client. Turning away a job that one does not actually want, or which is outside one's scope, may

later lead the customer to pass the remainder of his work to the firm who have obliged him. In like manner, when the customer gives an order for circulars the thoughtful order clerk will realize the ultimate need or possibility of their being enclosed in envelopes, and will suggest that the firm supply these as well.

This same imaginative looking ahead should be followed with larger work, and it is astonishing how a comparatively insignificant order may grow under skilful handling. A certain order clerk possessed a clever sense of colour and, by suggesting a surround of grey to improve and enhance the colour value of a tri-colour job, obtained the order for the extra blocks necessitated and also the additional printing in grey. The result was a piece of work of a higher order, a better-pleased customer, and a gratified printer.

From the foregoing it will be seen that the order clerk, to be successful, must not only be well grounded in the intricacies of the up-to-date printing establishment, but must also be resourceful and versatile, and the more he possesses these qualities the greater asset will he prove to his employers.



SECTION III  
PAPER  
AND THE PAPER WAREHOUSE

BY  
EDWARD A. DAWE  
*Author of "Paper and Its Uses"*



## CHAPTER X

### PAPER AND THE PAPER WAREHOUSE

PAPER is necessary to the printer and to the binder, and is generally considered as a raw material, although it is the finished product of the paper mill. It is always advisable to have a fair knowledge of the raw materials to be used in any industry, in order that nothing shall be done during further manufacture which will injure the material, and, as far as is possible, to choose the variety which is most suitable for the purpose in hand. Therefore, it is proposed to deal simply but comprehensively with the subject of paper manufacture, not with a view to compiling a manual of paper-making, but in order to give the student an intelligent acquaintance with the whys and wherefores of different papers for the various processes carried out under the roof of the printing and binding establishment. In order to encourage further study of the subject, a list of suitable books is added at the end of this section, with one or two remarks upon each.

### MATERIALS

PAPERS with which the printer and binder are concerned are manufactured from a limited range of materials, and comprise fibres of vegetable origin, sizing which may be animal or vegetable, certain mineral additions, and small or large quantities of colouring matter.

Fibres form the principal part of the paper, and must be regarded as cellulose in a more or less purified condition, according to the origin and treatment of the

raw materials. Cellulose is defined as the substance of which the permanent cell membranes of plants are composed. Although cotton and flax fibres are used for the highest grades of paper, they are not purchased as raw cotton or raw flax, but in the condition of "rags." This term is applied to new cuttings and waste threads, as well as to all the cast-off textile materials in the form of worn clothing or furnishing fabrics, and the perusal of the market quotations in the technical magazines will indicate the numerous grades of rags which are available for paper-making.

It is clear that the greatest volume of paper is made from fibres derived from the forest trees. Wood pulp is used universally for paper, although it is not economically possible to utilize every variety of wood. The softer woods—pine, fir, spruce, poplar, birch—are the most suitable for producing wood pulps for the manufacture of paper which are in general demand. Various grasses are suitable for paper-making, the principal varieties which are used being straw of certain kinds, esparto, and bamboo. Thus it may be convenient to classify the raw materials as rag, wood, and grasses, and to consider the methods of preparation of each, up to the stage which is known as half-stuff.

Rags, upon receipt at the paper mill, are sorted, all foreign materials such as buttons, fastenings, rubber, silk, and wool are removed, and the rags are cut into pieces of uniform size. The cutting may be done wholly or in part by hand or machine, and the cut rags are subjected to vigorous mechanical dusting. The next stage consists in boiling in a rotating spherical boiler, with a calculated quantity of caustic soda solution, in order to loosen the union between the rags and the dirt which so often accompanies the raw material. After sufficient boiling the rags are washed and forwarded to the breaking engine. ("Engine" in this connection is

really the same as “machine.”) In the breaking engine there are two cylinders: the breaking or beating roll and the washing drum. The roll is a very heavy cylinder with bars, parallel to its axis, placed at regular intervals around the circumference. As the roll revolves, the bars engage with bars of the bedplate, the latter being fixed in the bottom of the engine. At first the rags are circulated by the action of the revolving roll, clean water is run into the tank which constitutes the main construction of the engine, and dirty water is removed by the washing drum. When washing is complete, “breaking” commences. It may be convenient to describe the process as unravelling the rags, thereby reducing the woven material to its original fibrous state. Some hours are required for the completion of breaking, but at the end of the period the rags are considerably cleaner, and resemble low-coloured cotton wool in a very wet condition. At this stage a quantity of bleach liquor is introduced into the breaking engine, and when thoroughly mixed the whole contents of the engine may be let down into bleaching tanks, becoming in due course “bleached half-stuff.”

The grasses are delivered to the mills in the original state of straw, esparto, or crushed bamboo, and the treatment of esparto will be sufficient to illustrate the practice of reduction of grasses from stalks to half-stuff. Firstly the bales of esparto are opened, fed into a mechanical dusting machine, and then conveyed to the mouth of a boiler, into which some two tons of esparto, together with the correct quantities of hot water and caustic soda, are introduced, and the boiler cover is secured. Some method of keeping the liquid in circulation is adopted, and for several hours the boiler is under steam pressure, resulting in a softening of the stiff grass, and in a loosening of the various non-fibrous matters from the fibres. At the end of the boil the dirty

liquor is run off, and the grass is washed and in due course conveyed to a breaking engine, or a similar machine known as a potcher (or mixer). Here the fibres are well washed, and, when sufficiently clean, the required quantity of bleach liquor is added, and, when thoroughly mixed, the half-stuff, as it has now become, is transferred to the bleaching unit, which may be a large, tile-lined tank, or to the series of cylindrical vessels known as bleaching towers. In the tank the half-stuff is allowed to lie until the bleach has completed its work, but if the tower system is employed the half-stuff follows a regular circulation, at the end of which the bleaching is complete.

Wood pulp usually reaches the paper-maker in this country in the form of half-stuff, but a short review of some of the processes which have preceded will be given, and, as there are three varieties of wood pulp imported for making paper, each must be referred to.

Chemical wood may be produced by the soda process—soda pulp—or by the bi-sulphite process—sulphite pulp. There are other chemical pulps, sulphate for kraft papers, and “alpha” pulp for high-grade, chemical-wood writing and printing papers. Mechanical wood pulp requires no chemical treatment, but is produced by mechanical means only. Soda pulp is obtained by the use of soft wood: spruce, fir, or poplar. The wood is cut into logs, the bark removed, and the logs reduced to chips which are fed into boilers with the calculated quantity of soda (caustic soda) liquor, and boiled for a considerable time. After washing, the fibrous half-stuff is formed into sheets resembling thick boards, dried, and baled for export. Sulphite pulp is produced by crushing the chips of spruce or fir, and boiling in a solution of bi-sulphite of lime and magnesium. The half-stuff may be bleached or made up into sheets in an unbleached state.

For mechanical wood pulp the logs are cut into billets, and the wood is reduced to "fibre" by the action of huge grindstones, against the surface of which the billets of wood are pressed. Large quantities of water are supplied to the surface of the grindstone, keeping the stone and wood cool, and serving to carry off the pulp as it is ground. The pulp is graded according to fineness, formed into "boards," and bundled for export. It is the practice to export mechanical wood pulp as "50 per cent wet," which indicates that there is only one-half of the pulp which will make dry paper, and there is an equal quantity of water. One reason for purchasing wood pulp in such a form is to cut out two unnecessary processes—drying the pulp and breaking it down again. Most mechanical pulp is dealt with in the wet state, and, as no bleaching is employed, it is ready to be furnished as half-stuff to the beaters.

The beating engine (or beater) is used for the various pulps as a mixer, as well as for the actual beating of the fibres. There are various designs of beaters, but most are based upon the "hollander," so called because it originated in Holland. It consists of a vessel with rounded ends, the interior being "dished" to prevent lodgment of fibre in idle corners. Longitudinally, the beater has a vertical division known as the "feather," and the beater roll occupies the greater part of the vessel on one side of the feather. The roll consists of a heavy, metal cylinder with steel or bronze bars, in groups of three, spaced round its circumference. Beneath the centre of the roll is the bed-plate, consisting of a number of metal bars, spaced regularly, and disposed so that there is a slight angle between the bars of the roll and those of the bed-plate. Provision is made for varying the distance between the roll and the bed-plate. Means are adopted to trap metallic and other hard particles during the process of beating, and in the base of

the engine is a valve for emptying the beater when beating is completed. Other fittings include channels for furnishing clean water, and steam for heating the contents, and possibly for china clay, size, or alum solution.

The method of beating is to start the beater roll, to turn on the water, and to furnish the half-stuff gradually, ensuring that the material passes under the roll and continues to circulate regularly. The purpose of the beater is to open the fibre masses, to cut and crush the fibres according to the requirements of the stuff, and to thoroughly mix all the fibre lengths, so that the mixture is really homogeneous. Various effects are obtained by quick beating, by slow beating, by beating with the distance between the roll and bed-plate set widely or closely, and by the condition of the beater bars. Thus the paper-maker can prepare stuff of different character for each different kind of paper, after choosing the most suitable raw material.

Papers may be made entirely from any of the fibres, with the exception of mechanical wood, which requires the addition of material of longer fibre, such as chemical wood. Rag papers, esparto papers, and wood-free papers, are made from one kind of fibre, but it is possible to make papers from mixtures such as rag and esparto, rag and chemical wood, and esparto and chemical wood. It has already been noted that mechanical wood papers are actually composed of a mixture of chemical and mechanical wood pulps, the maximum mechanical content being about 80 per cent.

## PAPER MAKING

THE following description of the method of making paper by hand is reproduced by permission of the Publishers from *The Paper Mills Directory of Great Britain and Ireland*.

## HAND-MADE PAPER

*(With special reference to the manufacture of Drawing Paper)*

In these days of mass production the survival of the hand-made paper industry is known to very few outside the paper trade.

Nevertheless there are several mills in the country where only hand-made paper is manufactured, and there are several purposes for which the hand-made sheet is still almost indispensable. Not only this: The obvious quality of a piece of hand-made paper conveys distinction, and no sheet of machine-made can compete with it in this respect. This is partly due to the fact that it can be made only from pure rag and no modern substitute can be employed.

Comparatively it is expensive, but only comparatively, and the following short description of its manufacture will give some idea of the care and skill of the craftsmen who must of necessity put their individuality into every sheet they make.

It is hoped that this short article may help paper sellers to place the genuine product where the substitute is not so suitable—and also by reminding the trade of the claims of this—the original section of the industry—ensure the continued prosperity of our remaining hand-made mills.

The best and cleanest rags (preferably linen or very largely linen) are solely used in making drawing paper.

After being carefully sorted to eliminate seams, bits of trimming, and other unsuitable materials, the rags are cut into pieces of three or four inches square, and boiled in a weak alkaline liquor for several hours to cleanse them and make the bleaching process easier; after which the boiled rags are fed into what is called a breaker, or breaking engine, where they have to pass

under a heavy roll with knives on its circumference. This revolves on a brass or steel plate, also furnished with sharp edges, so that all the rags have to pass between the revolving roll and the fixed bed-plate, and so get torn up into what is called half-stuff.

The rags are thus broken up, but the fibres are still long and stringy. At this stage the bleaching is done. A solution of bleaching powder (hypochlorite of lime) is put into the breaker, or the half-stuff is put into a tank, where it can soak in the bleaching liquor.

When the half-stuff is sufficiently white, the bleaching liquor is washed away by a plentiful supply of spring water, till chemical tests show that no bleach remains in the pulp. In some cases the rag is neither boiled nor bleached (where extreme purity is claimed), and in this case the sorting has to be extremely carefully done, and only the whitest and cleanest rags can be used.

The bleached half-stuff is emptied into what is called a beater, or beating engine, of very similar construction to the breaker, except that the knives on the roll are more numerous. On the treatment received in the beater depends the strength of the paper, its freedom from lumps, and other important characteristics.

Up to this stage the treatment is very similar, whether the paper is to be made by hand or by machine ; but for the hand process the stuff when beaten to the desired degree of fineness is emptied into a store chest, stirred by a mechanical device, and is thence drawn as required for use in the vat. The pulp on its way to the vat passes through strainers or knotters to keep back knots and strings.

The strainer plates have narrow slits, about one-hundredth of an inch wide, and, by means of suction or oscillation, the pulp is made to pass through these slits before going on to the vat.

The pulp in the vat is kept warm at about 100° Fahr.,

and is continually stirred up by a stirrer near the bottom. The vatman dips his mould, a light frame of wood covered with wire cloth, into the vat and takes up enough pulp to form a sheet of paper, the pulp being prevented from flowing over the edges of the mould by a thin removable edge called a deckle.

The vatman shakes this film of pulp in a dexterous way till the fibres have arranged themselves as a thin sheet. He then gently removes the deckle and pushes the mould with its burden over to the other side of the vat, where there is a sort of prop, against which leans the mould to drain for a moment, while his mate (the coucher) returns to him the other mould (they are always worked in pairs). The coucher takes the one that has been draining, and turns it over, face downward, on to a thick felt to which the thin sheet, now a sheet of paper, adheres. He then returns the mould to the vatman, who continues the process as before.

When a certain number of sheets have been so placed between the felts (which are really heavy blankets), the post, as it is called, is drawn away on rollers (there is a thick plank as a foundation to the post) to a hydraulic press. Here great pressure is exerted, and the surplus water is squeezed out, the post being squeezed till a pressure of one ton (or more) to the square inch is reached.

Each felt is now taken off and thrown back to the coucher. The wet sheets of paper are placed in a heap, so that there grows a heap of damp paper on one side.

The foreman has frequently to examine the paper made to see that the correct thickness is maintained. This is regulated by the admission of more or less water to the pulp in the vat, and also by the skill and dexterity of the vatman in dipping the mould into the vat. When three posts of paper have been made, say two or three hundred sheets—that quantity is called a

pack, and thenceforward becomes the unit during the next process, a most important one in paper making, namely, pressing in the packs.

The felts have a distinct diagonal grain, and also a less distinct longitudinal one, either of which, appearing on the surface of a drawing paper, would be very objectionable; great pains are therefore taken to obliterate the grain these felts have left on the surface of the paper.

Twice a day, the newly-made paper is taken away and stacked in a hydraulic press of a different type from that previously used, where the whole pile, perhaps four feet or more high, is pressed till water begins to ooze from the edges.

It is left there for several hours, and is then taken to the parters. Each pack is now a solid block of paper which can be handled quite easily without carrying it on a board or zinc plate, which was necessary before it had been pressed.

The parter's duty is to divide the paper, sheet by sheet, and pile it up again in the same order, but in such a way that no two sheets fall together exactly as before, so at the next pressing the grain is still more obliterated.

In the case of papers that are pressed a third time the grain should entirely disappear. This is a tedious process, as parting has to be done between each pressing.

When the pressing is done the paper goes into the drying loft, where the sheets are spread out six to ten sheets thick (according to the kind of paper) on flat canvases which can be worked up and down by hand. Each canvas is filled by men standing on the ground, and is then raised to the top of the loft until the loft is filled. Much paper is still dried on lines or poles, but a drawing paper must not show a line down the back.

Flat drying is absolutely essential for these papers, although not any great advantage for papers that are subsequently to be folded, such as account-book papers.

When dry the paper is called waterleaf, and before it can be used for writing or water-colour work it has to be sized.

This unsized paper, or waterleaf, is often used for printing etchings and such like, as it receives impressions very readily.

The sizing process is now almost entirely done in what is called a travelling machine, though until quite recently some papers were sized in the old-fashioned way by hand labour. The sizer dips handfuls of waterleaf paper into a tub of hot size till well soaked, and then arranges them in a heap, say three feet high, after which they are pressed to squeeze out the superfluous size.

The sizing machine has now become practically universal. It consists of a long shallow trough, about 30 ft. by 5 ft., and 8 in. or 10 in. deep. This is fitted with rolls to guide the paper, and a pair of large wooden rolls at the further end to squeeze out the superfluous size and connected with the driving belt, which makes the whole arrangement of felts and rolls travel very slowly. The machine can be varied to travel at different speeds.

The rolls are covered with two endless felts, one of which remains always under the size. The other carries the paper under the size between it and the top of the underfelt. These two felts with the paper between them emerge at the other end between two rollers, to which varied degrees of pressure can be given.

The best papers, whether account-book or drawing papers, are sized twice (with a separate drying in between) to ensure their being quite hard and reliable.

The size is made of gelatine. Some paper-makers buy their gelatine ready made, and melt it for use; others make their own, buying hide fleshings, roundings or trimmings, etc., and boiling them in copper-jacketed pans to extract the gelatine.

The sizing is a very important operation—the best paper may be spoilt by carelessness in this department. The sized paper is left in heaps, carefully wrapped up in felt to keep the heat in, for several hours, and is then parted sheet from sheet in the same manner as described at an earlier stage.

If the sized paper were not so parted it would stick together, and the parting is done to prevent this.

The paper then goes into the loft again and is dried, as before the sizing operation, but with greater care, as any sudden change in the temperature, or check in the drying process, would cause the paper to be stained and spoilt.

This is a lengthy and costly process, and when the paper, after being twice sized, parted and dried, comes to the finishing department there is still more to do.

Each sheet is examined, small specks are picked out, and other blemishes removed where possible. Wrinkled or cockled sheets are laid aside for further treatment, and loose hairs from the felts are removed.

For ordinary writing and account papers a smooth surface is obtained by putting the paper between polished zinc plates, till a book (as it is called), about an inch thick, is made. This “book” is passed several times between steel rolls under great pressure. This produces a glazed surface, but in the case of most drawing paper, a dead flat surface, without glaze, is required. This is obtained by prolonged, and often repeated, pressure in hydraulic presses and to get the paper to the desired degree of flatness and smoothness is a very lengthy process.

## MACHINE-MADE PAPER

Paper-making by machine is not so picturesque as paper-making by hand, but the machine itself, together with its "drive," is very imposing. All the operations comprised in making by hand are performed step by step in the machine. In one respect the stuff for machine-made papers is usually distinct from that for hand-made paper: whether the paper is to be gelatine (tub-) sized or not, resin size is added to the stuff in the beating engine, and the paper is engine-sized. After the stuff is thoroughly mixed it goes forward to the stuff chest, and before it reaches the paper machine it passes over sand tables and through strainers, in order to remove all foreign particles. The stuff travels to the machine in a highly diluted state, approximately 99 parts of water to 1 part of fibre. The machine has a wet end, where the stuff flows on to an endless web of woven wire, and is there converted into a continuous web of wet paper. Water is removed by gravity, by suction, and by pressure. A dandy roll between the suction boxes serves to close the web and to impress any "watermark" that is required, including laid lines for laid papers. The wire passes over a further suction box (or boxes) over the lower couch roll, and returns to the end of the machine, while the web of paper is pressed between the couch rolls, thereby being closed or consolidated, and the quantity of water is reduced. The analogy of the hand-made process is continued, the web passing upon supporting felts through the press rolls, where the paper is pressed on both sides and more water is removed. Next follows the drying of the web, which is accomplished by means of a number of iron cylinders of large diameter which are heated by steam passed into the interior of the rolls. The web of paper is kept in contact with the drying cylinders by a series of travelling felts. Gradually the paper is dried,

and whether it receives a slight finish from the calender rolls of the machine (machine finish) or is destined to be super-calendered later, the web is reeled at the end of the machine in a large roll, the full width of the machine.

Most machine-made papers are sized in the pulp, i.e. engine-sized, and papers which are to be tub-sized with gelatine are first sized with resin, and leave the paper machine as partially-sized papers. The web of paper may be passed through a vat or trough of gelatine, over a number of skeleton cylinders, with auxiliary drying fans, and the paper, being air-dried, is reeled for any further necessary operations.

Super-calendering is a separate and additional operation. Paper which is to receive this finish is damped at the end of the paper-making machine, and when the moisture has diffused through the substance of the reel, the paper is ready to pass through a stack of rolls, consisting of alternate highly polished metal cylinders and rolls (or bowls) made of compressed paper. Any degree of finish may be imparted to the paper, from just a smoothing effect up to the very high finish which is associated with super-calendered printings.

There are several other patterns of paper- or board-making machines. The cylinder mould machine is used for the manufacture of high-grade writing and drawing papers, most of which are scarcely distinguishable from hand-made papers, the deckle edges being retained on "mould-made" papers. The "single cylinder" machine is sometimes known as the M. G. machine, or Yankee paper-making machine. It has but one drying cylinder, from 8 to 12 ft. in diameter, but in other respects it resembles the Fourdrinier machine up to the couch rolls. After the wet web of paper leaves the couch roll it is pressed closely upon the highly polished surface of the drying cylinder which is heated

by steam. The high surface imparted to one side of the paper by the polished cylinder is comparable to the surface of a photographic print which has been squeegeed to the surface of a ferrotype or glass plate. As the web finishes its journey it is completely dried, and is stripped from the cylinder and reeled.

A board machine may comprise one or more moulding cylinders each having an outer cover of woven wire through which the water may pass. Revolving in a vat of prepared stuff, the fibres collect on the periphery of the cylinder in an even film. If more than one layer is required, as in the case of duplex, triplex, or multiplex boards, a separate cylinder in its own vat for each layer is employed, and the layers of pulp are deposited upon one another, being carried upon a travelling felt. The assembled layers are conveyed to the presses and drying rolls.

“Finishing” may include slitting, cutting into sheets of correct dimensions, sorting the paper, counting, and packing. Sorting produces “good,” “retree,” and “broke” papers. For most machine-made papers there are only two kinds offered for sale—good and retree, the latter carrying a discount of 10 per cent off the standard price. Hand-made papers are sold in all three grades, retree at 10 per cent reduction, and broke at 50 per cent reduction from the price for good paper.

## VARIETIES OF PAPER

ALL known varieties of paper are made by one or other of the methods outlined in the preceding pages, but it is not necessary to include a full catalogue of all papers in this section. It will be sufficient to refer to the principal classes of papers, to particularize a few, and then to pass on to matters concerning the use of papers.

The papers produced may, for convenience, be

classified as printing, writing, cover, and wrapping papers.

Printing papers include art (coated), antique, bible, chromo, featherweight, imitation art, lithographic, m.f., news, offset, super-calendered, and wood-free papers, and a few words on each will dispose of an imposing list in a small space.

Art (coated) papers are made by covering a base paper with a coating of enamel. The coating consists of a mixture of an adhesive (gelatine, casein, or starch) with certain white minerals, such as china clay, calcium sulphate (satin white), and barium sulphate (blanc fixe). After coating one side, the web is reeled and afterwards coated on the reverse side. The necessary finish, matt, dull, velvet, or high finish, is obtained by calendering. Chromo papers differ only in the quality and thickness of the coating upon the papers, and in the actual finish of the paper.

Antique printing papers are rough in finish, and may be wove or laid. Wove papers have only the wire mark from the machine wire, while laid papers have additional marks from the dandy roll, being the parallel laid lines, and the tying wires about one inch apart. Featherweight papers are bulky antique papers. These papers are made of esparto, chemical wood pulp, a mixture of the two, or even a mixture of chemical and mechanical wood pulps.

Bible papers are thin, opaque printing papers, with a smooth but not highly polished surface. The highest quality of such paper is the Oxford India paper, made from rag, with a large amount of added mineral matter.

Imitation art paper is a super-calendered printing paper with a large amount of mineral matter, with but a small amount of sizing, and such paper is not very strong, although very suitable for half-tone work. Super-calendered printing papers are made from

esparto, chemical wood, or from a mixture of the two materials; there are also mechanical super-calendered printing papers.

Lithographic (litho.) papers include all those used for the process: super-calendered esparto, rough-backed, varnishing, m.g. (machine-glazed) papers. With the exception of the last in the list, it is usual to include a large percentage of esparto in the composition of this class of paper, as such papers are less susceptible to expansion and contraction than papers made entirely from chemical wood pulp. Litho. papers are bulky, firm, and moderately well sized. Rough-backed papers are super-calendered on one side only. Varnishing papers (for labels, showcards, etc.) are so prepared that no separate sizing is necessary before varnishing. M.g. litho. papers, suitable for posters of all kinds, are made of chemical wood pulp on the m.g. machine.

Offset printing papers are thick varieties of litho. paper with an antique surface, but are well sized. These papers are obtainable white, cream, or toned in shade.

News (newspaper printing or newsprint) is a well-known kind of paper, made from mechanical wood pulp (70 to 80 per cent) and chemical wood pulp (20 to 30 per cent). It is made on a wide machine at high speeds, with only a small quantity of sizing, and with m.f. or s.c. finish. The regulation substance is 52 grammes per square metre, which is equivalent to demy 29 lb. or double crown  $44\frac{1}{2}$  lb. per 1,000 sheets.

Wood-free papers are those which have no mechanical wood pulp in their composition, and the term is equivalent to "free from mechanical wood pulp." But it is usual to regard papers which are made entirely from chemical wood pulp as fulfilling the description of wood-free, and, although most chemical wood papers are made from sulphite pulps, there is no reason why papers should not contain soda as well as sulphite

pulps. Esparto printings contain esparto fibres, anything from 10 to 100 per cent being catalogued as esparto printings. All the printings in this class are obtainable with different degrees of finish, m.f. and high machine finish being imparted by the calender rolls of the paper machine, while the super-calendered finish is produced by a separate process already described. Esparto printings are more opaque, more bulky, and better for printing than the wood-free (sulphite) papers. All printings in this class contain a certain amount of mineral filling (china clay) for the purpose of ensuring the necessary opacity and finish of the papers.

Tinted and coloured printing papers are made in all qualities, so that there are mechanical coloured, wood-free coloured and tinted, and esparto tinted papers. Coloured printings are usually classified as glazed or unglazed, and tinted papers may be super-calendered or machine-finished.

Writing papers must not be regarded as of less importance than printing papers, even if in many press rooms there may be but small quantities dealt with. Some printers will handle large quantities of writing papers, and their list will include account-book papers, banks, bonds, and loans.

There are many varieties of account-book papers, wove or laid, and the differences are in material, method of manufacture, and finishing. Thus, ledger papers are frequently azure laid, and, if hand-made or high quality machine-made, are loft-dried or air-dried, tub-sized papers, and are regarded as durable and permanent. The same qualities are usually obtainable in azure wove papers. Then the qualities gradually descend from all rag to rag/wood, all wood (sulphite), and wood/esparto, any of which may be tub-sized and air-dried, or engine-sized only. The finish of

hand-made papers is always obtained by plate rolling, but other papers are generally super-calendered if a high surface is required. It is unusual to encounter cream laid ledger papers, the class being restricted rather to azure laid, azure wove, and cream wove.

Banks are made in many qualities and colours. Hand-made bank papers are usually cream wove, cream laid, azure laid, or azure wove, all rag, and tub-sized. Machine-made banks embrace a wide variety of papers, and there is a graduation of prices corresponding to the differences in qualities. From all rag, tub-sized papers to the cheapest of engine-sized, wood-free banks there may be at least 20 steps in the prices charged. "Bank" is a description associated with thin, strong papers, and there is a sharp division between glazed and unglazed banks. Substance is another method of classification: 45 grammes per square metre is the standard substance for banks, and below that figure will be found manifold banks, some of which are 30 grammes or less.

Bond papers should be strong, thin papers, rather heavier than banks, made of the very best materials, and always tub-sized. But it is noteworthy that in paper, as in many other commodities, there is considerable looseness in the application of titles to the manufactured article. Therefore, it may be set down, as a general rule for the present day, that "bond" papers are thicker varieties of paper correctly classified as bank writing papers. If the paragraph relating to banks be now re-read, with the reference to substance omitted, there is nothing which is not applicable to the papers offered as "bonds." The substance is generally from 50 grammes per square metre upwards, and the upper limit of substance may be such as to remove the word "thin" from any description of bond papers. There is no uniformity in regard to the exact line of division between bank and bond papers. Some of the

difficulty arises from series of watermarked papers, as it is not considered good policy to disturb the watermark of a series of papers offered as bonds, and to describe those which are 45 grammes or less as banks, and the same policy governs bank papers in series. (It should be noted that as a general rule bond papers are wove and not laid.)

Loan papers are strong, dense writing papers, used for documents of the highest importance, and are made of the strongest rags obtainable, hand- or machine-made, tub-sized, loft- or air-dried, and well rolled, such materials and treatment producing the strongest papers. For documents such as leases, agreements, policies, and similar instruments, which are to be preserved indefinitely, loan papers are eminently suitable.

Writing papers in general include all the papers employed as note papers and many papers which are closely allied to well-made printing papers. It is scarcely necessary, in this volume, to catalogue the whole of the papers, but a few lines must be devoted to sizes and varieties. Writing papers, as reference to the table of sizes will reveal, are made in but few sizes, and the papers now to be dealt with are confined to foolscap, small post, and large post, used in regular divisions of the sheets: foolscap folio, 13 in.  $\times$  8 in., quarto, 8 in.  $\times$  6 $\frac{1}{2}$  in., octavo, 6 $\frac{1}{2}$  in.  $\times$  4 in.; small post quarto, 9 in.  $\times$  7 in., octavo, 7 in.  $\times$  4 $\frac{1}{2}$  in.; large post quarto, 10 in.  $\times$  8 in., octavo, 8 in.  $\times$  5 in. The octavo sizes are sometimes quarto sheets, folded, being technically "octavo with fly," producing a four-page document.

The principal classes of writing papers are cream laid and cream wove, but there are also azure and blue laid or wove. The varieties of materials and sizing are just as wide as in the class of bank papers. In the matter of finish or surface of these papers, however, there is a far wider choice. By the judicious use of the calenders of

the paper machine, or by utilizing the whole or part of the super-calender, different degrees of finish may be imparted, and these are known by the various mills as unglazed, low finish, parchment, vellum, high finish, and some other terms peculiar perhaps to one mill only.

Cover papers are probably so well known that no extended reference need be made to the class which is growing ever wider and wider. Evolved from the ordinary wrapping papers, the typical cover paper is an unglazed paper of moderate thickness and strength, and coloured with the duller shades of most available colours. That does not embrace all cover papers, for there are many high-grade, imitation hand-made covers which are white, cream, or in pale tints, having deckle edges. Coated paper and boards may be used as covers, and there are varieties of paper-backed foils which are now available for catalogue covers. By the adoption of varying surfaces, from machine-finished to super-calendered, and by embossing with different patterns of fabrics and leathers, the same paper may be presented in a number of variations. The sizes of cover papers are irregular, not following the standards of printing papers, as there must be allowance made for the thickness of the back of the book. The most frequent sizes approximate to 23 in.  $\times$  18 in., 25½ in.  $\times$  20½ in., and 31 in.  $\times$  20½ in.

Wrapping papers embrace many papers which are not in general use in the printing office, and therefore only need to be referred to by name. Brown wrapping papers may be unglazed, machine glazed (glazed on one side only), or glazed. Kraft papers are supplied in all three of these finishes, but the unglazed variety offers several advantages over the other varieties. The printer, no doubt, realizes at once that unglazed brown papers are similar to some cover papers, and it frequently occurs that a mill may be manufacturing both

cover and wrapping papers. Wrapping papers are obtainable in a limited number of colours, and it will be found that the border line between coloured wrappings and cover papers is scarcely definable.

The range of wrapping papers includes papers which have the following titles: abrasive bases, ammunition, backing, bag, blacks, blues, bowl, browns, caps, casings, corrugated, felts, fruit, grocery, hosiery, insulating, krafts, manilas, middles, mill wrappers, pin and needle, sealings, sugar, sulphites, tea, tips, tobacco, tube, water-proof, and waxed.

Special varieties of wrapping papers, which are seldom made in wrapping mills, are papers falling under the heading of parchments. A very brief description of each will indicate the papers used for packing food, tobacco, sweetmeats, and other commodities.

Vegetable parchment or parchmentized paper is made by passing a web of unsized paper through a bath of sulphuric acid, removing the excess acid, neutralizing and washing the paper. The finished paper is impervious to air and grease, and is invaluable for food wrapping and other purposes.

Imitation parchment is a strong, well-sized paper, sometimes containing mechanical wood pulp, is fairly resistant to moisture, and moderately impervious to grease, but is inferior to vegetable parchment or greaseproof as a wrapping.

Greaseproof parchment (bleached or unbleached) is made from well-beaten chemical wood pulp, it resists oil and grease, is suitable for food wrapping and for paper-bag cookery, and is usually tested by the application of a match flame or similar means, the production of blisters indicating "real" greaseproof paper.

Imitation greaseproof parchment is inferior to greaseproof paper and is less suitable for the purposes for which the latter paper is generally employed.

Glazed and unglazed imitation parchments are closely allied to engine-sized banks and bonds, some mills manufacturing both the writing and wrapping papers from similar raw materials, and marketing them under their appropriate titles. Glazed imitation parchment is frequently referred to as G.I.P.

Glazed transparent parchment and glazed transparent greaseproof parchment are made from chemical wood pulp, well beaten, and very heavily calendered. The resulting papers are transparent, highly glazed, and greaseproof. In white and colours these papers are used for interleaving and for wrapping. For special purposes the papers are embossed, and also shredded, and it is not possible to apply the flame test in a convincing manner. These papers are referred to as glassine (glacine) and in thin varieties are onion-skin papers.

Akin to the last papers are the transparent wrappings marketed under special names, such as cellophane, cellisite, dialux, transceltic, pellicle paper, etc., which are not papers in the strict sense of the term, but have been made by treating cellulose in the form of rag or wood pulp with solvents until there is nothing fibrous remaining. The "syrup" is made into sheets of even thickness which are transparent, flexible, and do not easily become soiled during exposure. Gelophane, and other gelatine films, are also used for the same purposes, that is, for wrapping or protecting foodstuffs, and for use as "windows" for various packages.

#### CARE OF PAPER

All papers as received from the mill or wholesale stationer are known as "white paper," i.e. unprinted paper. Every care should be exercised to keep it white and unblemished until it is changed from white to printed paper. A few general observations will suffice to

indicate the necessary precautions to be taken in regard to most papers and boards.

To ensure freedom from damage while the parcels of paper are in stack, some attention should be paid to the strings or tapes used for fastening. Thick string will mark a number of sheets in each parcel if the stack is large. Therefore, it is important that no knots shall be allowed, except at the ends of the parcels, and it may be necessary to remove thick strings when stacking in order to avoid bad marking. Wrappers should be intact, and all parcels should be end-wrapped if the material is to be stocked for any period. No paper should be exposed to strong sunlight, or to currents of very dry or very damp air. Special care is necessary at all times in regard to coated papers. Damage by creasing or by atmospheric influence is not difficult to avoid, but is extremely difficult to remedy. Paper should be handled with care at all times, and it is much easier to transport large paper in quantities smaller than the usual package of 500 than in complete reams, or the paper can be folded over to a convenient and manageable size when necessary.

Paper which has been stripped and stacked in the machine-room, or other department of the factory, should be protected from damage by dust, dirt, or exposure. Precautions should be taken at all stages, whether before or after processing in any department of the works, to continue such protection.

#### DIFFICULTIES IN THE USE OF PAPER

Paper is frequently blamed for all the difficulties which arise during its transformation from plain paper to the finished job. Sometimes the faults lie elsewhere, and frequently the paper is the victim and not the culprit. In another part of this section (see pages 153–157) attention is drawn to the importance of air conditioning

in the printing works. It is clear that most of the troubles arising in the manipulation of paper, such as cockling, creasing, curling, cracking during folding, and sticking through static electricity being present, are preventable if the paper is stored and used in buildings in which the atmospheric conditions are controlled and are uniform. Such troubles as picking or plucking may arise from several causes, but it may be that ink, air condition, and the paper may be contributory.

Only by observation and investigation can the troubles be traced to their source, generally by a process of elimination. But once a trouble has been experienced and its cause traced, a record should be made of the circumstances and of the methods adopted for overcoming the difficulty, and much time may be saved in future cases of the same kind. It is important that every possible avenue should be explored, as machine, ink, weather, or even the printer himself may be the only or chief cause of trouble.

## STANDARDIZATION

DOUBTLESS it will be remarked that there are references in the paper section to "grammes per square metre" as an expression of the substance of papers. Such a term can be justified in the attempt to advance the cause of standardization. Movements for the adoption of standards are generally very slow. In the standardization of paper and boards there are directions in which uniformity is possible, and they may be summarized as size, substance, thickness, strength, colour, surface, opacity, and texture, and also in the quantity in packages. There are but three which may be profitably discussed here: size, substance, quantity.

Under the agreement between the Federation of Master Printers and the National Association of

Wholesale Stationers and Paper Merchants (1926) it was agreed that certain sizes should be adopted as standards for writing and printing papers. It was also agreed that all dealings in paper and boards should be on a decimal basis—1,000's or 100's, with aliquot divisions of 1,000, as the method of packing papers and boards. It is only a step to make the method of packing and calculating applicable to every kind of paper and board which enters the printing office.

As regards substance, there are but few standards. Most paper users are familiar with "large post 11" as "bank substance," "demy 14" as the basis for newsprint, or "imperial 72" for drawing papers. In each case the reference is to "reams" of 480 sheets, and the figure denotes the weight of such reams in pounds avoirdupois. In a list of ten writing and printing papers drawn up recently reference was made to seven different sizes as standards. It would be thought intolerable if the wholesale stationer, drawing his supplies from all parts of the world, were to state his prices in dollars, francs, florins, and yen. The customer would rightly demand one standard—preferably shillings. In paper substances it should be the same, and as we are an exporting as well as an importing country grammes per square metre is a single expression which requires no reference to size of sheet or number of sheets in a package. It is at once an absolute as well as an arbitrary expression: absolute, for if a square metre of the material be weighed it is possible to express the result in grammes; arbitrary, because no paper is made in the size of a square metre. But it is a convenient expression, and is almost world-wide in its adoption.

To return to the standard substances quoted. There is no direct relation between the figures of 11, 14, and 72, which are given, until they are brought to some other comparison: large post, demy, or imperial, each

of which bears no direct ratio to the others. But stated in terms of grammes per square metre the figures are 45, 52, and 160, and are directly proportionate to the weight of any similar unit of the different papers. It might be correctly urged that no newsprint or drawing paper is made in large post, no bank or drawing paper is made in demy, nor drawing paper in large post or demy. But all can be stated in a common denomination of the weight of a square metre. That is the reason for its adoption, and another step is necessary.

On occasions, when estimating for work, a slight economy is effected by reducing the substance of the paper by two, three, or even five per cent, resulting in the same abatement of price of the paper. Such reductions cannot be made indefinitely, or there would be a reaction in the prices of paper. If, however, the substances are *all* standardized, with no possibility of variation, the difference between one substance and the next may be 5 grammes per square metre, or any other determined difference, but it would not be possible to reduce the substance by one or two grammes in order to effect "economy."

There is already an agreed list of standard sizes of paper and boards, and it is possible that the list may be further simplified and arranged so that all materials shall be included. Printers know well that it is possible to purchase special makings in any special size, but after that direction of economy has been explored, stock papers should be kept strictly to standard sizes.

Regarding quantities there is the unit scheme, or purchase in thousands; it is not universal, but applies to printings, writings, and cover papers, if machine-made. Hand-made papers and boards, wrappings, and some varieties of boards are excluded from the scheme of standardization. But the millennium is

yet to come when all papers and boards are calculated in sheets, hundreds, or thousands.

## STOCK-KEEPING FOR THE PAPER WAREHOUSE

THE importance of accuracy is fully appreciated by all who have had even the most elementary training in book-keeping. In all transactions in the printing office in which consumable material is concerned it is essential that in every case where precision is possible there shall be no mere approximation. Obviously it is not practicable to calculate exactly the weight of ink necessary to produce a small number of business cards, but it is simple to enter up the actual number of cards issued for the job.

It is possible to start our survey of a system of stock-keeping and stock-accounting by stressing the necessity for nothing less than accuracy in all details, no matter how large or small the quantities of paper or cards involved. It may assist in visualizing the intrinsic value of paper if we take a paper which weighs 100 lb. per 1,000 sheets at 5d. per lb. Every sheet costs a halfpenny, and as surely as it is impossible in double-entry book-keeping to dispose of a sum of ten shillings which has not been accounted for by a credit and a debit entry, so is it impossible to conduct a business with profit and security if looseness in the care of and accounting for paper is permitted. A deficit in a stock of the paper which is quoted above is just as serious as inability to trace an entry of ten shillings in a cash ledger.

Having established the need for accuracy, the next detail in the care of paper stock is the actual storage of the material. The keynote in all store rooms must be accessibility, and that may be regarded in several ways.

Unless stacks, shelves and benches can be approached with the papers to be there deposited, and have sufficient space between them to permit of the movement in or out of the store with ease, delay and damage are likely to ensue. It is impossible to lay down precise plans which will be suitable for every establishment in the space devoted to this section of the subject of paper. However, there are a few general lines from which there need be no divergence, whether the establishment be large or small. No paper or cards should be deposited directly upon a floor, whether wood, concrete, or otherwise. The damage that may ensue from damp or dirt can be obviated by having platforms of simple construction for the reception of all stacks of paper. If the stocks held are small, the paper should be kept on a series of shelves or racks, easily accessible, plainly labelled, and, as far as possible, with each class of paper kept together in one section. If the total stock is small, the complete packets (250, 500, or 1,000) and the relative oddments or broken quantities will be kept together. Should the stock be a large one, it may be more convenient to keep all the oddments in a central position in the stock room, so that the stacks may be kept clear.

The method of storage may thus be on shelves, on and under benches, or in stacks of various sizes. Cut cards and off-cuts will be conveniently stored on shelves of smaller dimensions than those employed for papers of large sizes.

The books to be kept in the paper warehouse are a journal and a ledger. In the former are entered all the transactions as they occur, and in the latter all such transactions are posted under their appropriate headings. In place of a bound ledger a system of record cards may be substituted. A few entries taken from a journal and their correct disposal will serve as an

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Authority	Name	Quantity	Description and size	G.S.M.	lb.	Taken or recd. by.
(1) WT9783	T. J. Harding	Issued 11420	Ptg. D. Crown	50	43	J.W.R.
(2) WT8471	"	" 510	Brown Dy. Cover	150	84	"
(3) WR182	Atlas Co.	" 732	Conqueror Large Post	75	37	F.P.
(4) OR183	Machine Office	" 100	Ptg. D. Crown	75	64	Sent
	"	" 20	2/s Art D. Crown	100	86	"
	"	" 20	Antique Ptg. D. Demy	90	50	"
	"	" 20	Az. Ld. D. Fcap	120	78	"
	"	" 20	Congreve L.P. Bond	90	89	"
(5) O1751	Sulphite, Pulp & Co.	Received 25000	Ptg. D. Crown	50	43	T.W.S.
(6) PL14	C. Jones & Co. (WT7522)	Issued 613	C.W. Bank D. Fcap.	45	56	F.P.

introduction to the simplest system which can be devised for keeping a correct and detailed record of all movements of the stock.

Of the seven columns of the journal shown opposite, only the first requires any explanation. The "Authority" is a record of the document which authorizes the issue or receipt of paper, and not even a sheet of paper should be without its document of authority. WT stands for Work Ticket, and the issue of (1) and (2) are for the execution of orders. WR indicates Works Requisition, and authorizes the issue of paper for making ready in the machine department. OR stands for Office Requisition, and the various papers are for use as samples in or outside the establishment. No. (5) is a receipt; its record is differentiated from issues, and O indicates "Order." The last issue, (6), is a replacement of spoiled work, PL standing for Profit and Loss, which account is affected by the loss.

The posting of the items in the ledger, or on the record cards, is fairly obvious, but to make the system quite clear, on page 148 a section of the Printings is shown in a series of five cards, with items (1) and (5) from the journal duly posted. The entries, whether in bound form or otherwise, will be similarly dealt with, receipts on the left and issues on the right. The classes of papers are prefaced by a guide card, bearing the class designation: Art, Azure Laid, Blue Wove, Printings, etc., according to the extent of the stocks carried. The opening of five cards is only a portion of the Printings section, and the full series is carried out on the same lines.

## TABLES

THE use of the tables which follow in this section should prove of value in estimating and making calculations for ordering paper and boards. Table I, which

[illegible]

(Reduced from Cards  $5\frac{3}{8}'' \times 8''$ )

gives the number of sheets in a ton of double royal, quad crown, and quad demy, three printing sizes, is intended for use where the substance of the paper is known and the price per ton is given. It is simple then to calculate the number of sheets and to obtain the cost without further references. Should other sizes be required, the substance in grammes being known, the double royal figures are profitably used, taking the figure corresponding to the substance of the paper, for instance, 60 grammes, imperial. Opposite 60, under double royal, is 26250. Multiply this figure by 1,000 ( $40 \times 25 =$  double royal dimensions in inches) and divide by  $30 \times 22$  (imperial dimensions in inches)  $= 39,773$ .

Table II gives in a small space equivalent weights, both as regards weight per 1,000 sheets from grammes per square metre and *vice versa*, and also as between sizes. It must be understood that in purchasing paper it is unlikely that invoices will show the fractions of a pound, as the fractions disappear when a large size is ordered (24 $\frac{3}{4}$  lb. demy becomes 99 lb. quad demy) or the figure is rounded off (24 $\frac{3}{4}$  lb. becomes 25 lb.).

Tables III-VI.—Boards, strawboards, millboards, wood pulp boards, and box and leather boards, are sold at a price per cwt. Strawboards are marketed on the basis of the weight of a single board of either 30 in.  $\times$  25 in., 750 sq. in., or 32 in.  $\times$  22 in., 704 sq. in. If boards of other sizes are required, the weight necessary for a given order can be calculated by taking the area in square inches of the required size, multiplying by the number of pieces desired, and calculating from the table the weight which must be ordered. Thus: 3,500 boards, 18 in.  $\times$  24 in., basis 16 oz. 30 in.  $\times$  25 in., will require  $18 \times 24 \times 3,500 \div 84,000 = 18$  cwt.

Wood pulp boards and leather boards are sold as 30's, 100's, etc., indicating the number of boards of basic size (22 in.  $\times$  32 in. or 24 in.  $\times$  38 in. respectively)

TABLE I  
NUMBER OF SHEETS IN ONE TON (2240 lb.) OF PAPER

Grammes per M <sup>2</sup>	Double Royal, 40 in. × 25 in.		Quad. Crown, 40 in. × 30 in.		Quad. Demy, 45 in. × 35 in.		Grammes per M <sup>2</sup>
	lb. per 1,000	sheets	lb. per 1,000	sheets	lb. per 1,000	sheets	
45	64 (64)	35000	77 (76.8)	29166	101 (100.8)	22222	45
46	65½ (65.4)	34239	78½ (78.5)	28532	103 (103)	21739	46
47	67 (66.8)	33297	80½ (80.2)	27925	105½ (105.3)	21276	47
48	68½ (68.2)	32812	82 (81.9)	27343	107½ (107.5)	20833	48
49	69½ (69.7)	32142	83½ (83.6)	26775	109½ (109.7)	20408	49
50	71½ (71.1)	31500	85½ (85.3)	26250	112 (112)	20000	50
52	74 (73.9)	30288	88½ (88.7)	25240	116½ (116.5)	19230	52
54	77 (76.8)	29166	92½ (92.1)	24305	121 (121)	18518	54
56	79½ (79.4)	28125	95½ (95.5)	22437	125½ (125.4)	17857	56
58	82½ (82.5)	27155	99 (98.9)	22629	130 (130)	17241	58
60	85½ (85.3)	26250	102½ (102.4)	21875	134½ (134.4)	16666	60
62	88½ (88.1)	25403	106 (105.8)	21169	139 (138.9)	16129	62
64	91 (90.8)	24531	109½ (109.2)	20507	143½ (143.4)	15625	64
66	93½ (93.6)	23787	112½ (112.6)	19866	148 (147.8)	15151	66
68	96½ (96.4)	23161	116 (116)	19301	152½ (152.3)	14705	68
70	99½ (99.5)	22500	119½ (119.5)	18750	157 (156.8)	14285	70
72	102½ (102.4)	21875	123 (122.9)	18222	161½ (161.3)	13888	72
74	105½ (105.2)	21283	126½ (126.3)	17736	166 (165.8)	13594	74
76	107 (107)	20723	129½ (129.7)	17263	170½ (170.2)	13157	76
78	111 (111)	20192	133½ (133.1)	16829	174½ (174.7)	12820	78
80	114 (113.8)	19687	136½ (136.5)	16406	179½ (179.2)	12500	80
82	116½ (116.6)	19207	140 (139.9)	16006	183½ (183.7)	12195	82
84	119½ (119.5)	18750	143½ (143.3)	15625	188½ (188.2)	11904	84
86	121½ (121.3)	18313	146½ (146.7)	15261	192½ (192.6)	11627	86
88	125½ (125.2)	17897	150½ (150.1)	14914	197½ (197.1)	11363	88
90	128 (128)	17500	153½ (153.6)	14583	201½ (201.6)	11111	90
92	131 (130.8)	17228	157 (157)	14266	206½ (206.1)	10869	92
94	133½ (133.7)	16542	160½ (160.4)	13962	210½ (210.6)	10637	94
96	136½ (136.5)	16406	164 (163.8)	13671	215 (215)	10416	96
98	139½ (139.4)	16071	167½ (167.2)	13392	219½ (219.5)	10204	98
100	142½ (142.2)	15750	170½ (170.7)	13125	224 (224)	10000	100

The weight figures are to the nearest quarter-pound, the actual weight being given in italic figures, to one place  
in the decimal part of the pound. The figures in italics are the actual weight in pounds and ounces.

TABLE II  
TABLE OF EQUIVALENT WEIGHTS IN LB. PER 1,000 SHEETS  
of each of the sizes adopted by the Federation of Master Printers (W = Writing; P = Printing) when substance is stated in grammes per square metre

Grammes per Square Metre	FOOLSCAP 13½ in. × 16½ in. W	LARGE FOOLSCAP 13½ in. × 17 in. P	SMALL POST 14½ in. × 18½ in. W	Sheet-and-a- third FOOLSCAP 13½ in. × 22 in. W	CROWN 15 in. × 20 in. P	SMALL DEMY 15½ in. × 20 in. W	Sheet-and-a-half FOOLSCAP 13½ in. × 24½ in. W	LARGE POST 16½ in. × 21 in. WP	SMALL MEDIUM 17½ in. × 22 in. W	DEMY 17½ in. × 22½ in. P	MEDIUM 18 in. × 23 in. WP	SMALL ROYAL 19 in. × 24 in. W	ROYAL 20 in. × 25 in. P	SUPER ROYAL 19 in. × 27 in. W	LARGE ROYAL 20 in. × 27 in. P	IMPERIAL 22 in. × 30 in. WP	Grammes per Square Metre
24	7½	8	9¼	10	10¼	10¾	11¼	12	13¼	13½	14¼	15¾	17	17½	18½	22½	24
25	7¾	8¼	9½	10½	10¾	11	11¾	12½	13¾	14	14¾	16¼	18	18½	19¼	23½	25
26	8	8½	10	11	11	11½	12¼	13	14¼	14¾	15½	17	18½	19	20	24½	26
27	8½	9	10½	11½	11½	12	12¾	13½	14¾	15¼	16	18½	19½	19¾	20½	25½	27
28	8¾	9¼	10¾	11¾	12	12½	13	14	15½	15¾	16½	19	20	20½	21½	26½	28
29	9	9½	11	12	12½	13	13½	14½	16	16¼	17	19	20¾	21¼	22½	27¼	29
30	9½	10	11½	12½	13	13¼	14	15	16½	17	17¾	19½	21½	22	23	28¼	30
32	10	10½	12¼	13½	13¾	14¼	15	16	17½	18	19	20¾	22¾	23½	24¾	30	32
34	10¾	11	13	14¼	14½	15	16	16¾	18¾	19	20	22	24¼	25	26½	32	34
36	11¼	11¾	13¾	15	15½	16	17	17¾	19¾	20¼	21¼	23½	25¼	26¼	27¾	34	36
38	12	12½	14½	16	16¼	16¾	17¾	18¾	21	21½	21½	24¾	27	27¾	29¼	35¾	38
40	12½	13	15¼	16¾	17	17¾	18¾	19¾	22	22½	23¾	26	28½	29¼	30¾	37¼	40
42	13	13¾	16	17½	18	18½	19¾	20¾	23	23½	24¼	27½	30	30¾	32¼	39½	42
44	13¾	14½	16¾	18½	18¾	19½	20½	21¾	24	24¾	26	28¾	31½	32¼	34	41½	44
46	14½	15	17½	19¼	19¾	20½	21½	22¾	25½	26	27	30	32¾	33¾	35½	43¼	46
48	15	15¾	18½	20	20½	21¼	22½	23¾	26½	27	28½	31¼	34¼	35	37	45	48
50	15½	16½	19	21	21½	22	23½	24¾	27½	28	29½	32½	35¾	36½	38½	47	50
60	18¾	19¾	23	25	25¾	26½	28	29¾	33	33¾	35½	39	42¾	44	46	56½	60
70	22	23	26¾	29¼	30	31	32¾	34½	38½	39¼	41¼	45½	50	51	53¾	65¾	70
80	25	26¼	30½	33½	34¼	35¼	37½	39½	44	45	47¼	52	57	58½	61½	75	80
90	28	29½	34½	37½	38½	39¾	42	44½	49½	50½	53	58½	64	65¾	69½	84½	90
100	31	32¾	38¼	41¾	42¾	44	46¾	49½	54¾	56	59	65	71¼	73	77	94	100
100	31.09	32.64	38.15	41.6	42.66	44.09	46.64	49.28	54.75	56	58.88	64.85	71.11	72.96	76.8	93.86	100
110	34¼	36	42	45¾	47	48½	51½	54¼	60¼	61¾	65	71½	78¼	80¼	84½	103¼	110
120	37½	39¼	45¾	50	51¼	53	56	59¼	65¾	67¼	70¾	78	85½	87¾	92¼	112¾	120
130	40½	42½	49¾	54	55½	57½	60¾	64	71¼	73	76¾	84½	92½	95	100	122	130
140	43½	45¾	53½	58¼	59¾	61¾	65½	69	76¾	78½	82½	90¾	99¾	102¼	107½	131½	140
150	46¾	49	57¼	62½	64	66¼	70	74	82¼	84	88½	97½	106¾	109½	115¼	141	150

(2108)<sup>6</sup>

The exact calculation, to two places of decimals, is shown in italic for 100 grammes, and the approximation to the nearest ¼ lb. is governed by the excess over the whole number—·1 or more = ¼ lb.; ·28 = ½ lb.; ·6 = ¾ lb.; ·8 = 1 lb.  
NOTE. The table may be used to obtain equivalent weights from any given size: thus, demy 28 lb. = 47 lb. imperial; sheet-and-a-third foolscap 20 lb. = super royal 35 lb.



contained in one cwt. If 2,500 wood pulp boards, 40 in. × 30 in., basis substance 200's, are required:  
 $40 \times 30 \times 2,500 \div 140,800 = 21\frac{1}{2}$  cwt. (approx.).

TABLES III & IV  
WEIGHTS OF BOARDS

APPROXIMATE AREA IN SQUARE INCHES WHICH WILL  
WEIGH ONE CWT. (112 LB.)

STRAWBOARDS			MILLBOARDS	
Weight	Basis 30 in. × 25 in.	Basis 32 in. × 22 in.		
	Sq. in. to cwt.	Sq. in. to cwt.		
1 oz.	1,344,000	1,261,568		
1½	896,000	841,045		
2	672,000	630,784		
2½	537,600	504,627		
3	448,000	420,523		
3½	384,000	360,448		
4	336,000	315,392		
6	224,000	210,261		
8	168,000	157,696		
10	134,400	126,157	Substance	Sq. in. to cwt.
12	112,000	105,131	6d	70,760
14	96,000	90,112	7d	52,420
16	84,000	78,848	8d	42,000
18	74,666	70,087	8d x	30,700
20	67,200	63,078	8d xx	22,700
22	61,091	57,344	10d	17,500
1½ lb.	56,000	52,565		
1¾	48,000	45,056		
2	42,000	39,424		
2¼	37,333	35,044		
2½	33,600	31,539		
2¾	30,545	28,672		
3	28,000	26,283		
3½	24,000	22,528		
4	21,000	19,712		

TABLES V & VI  
WEIGHTS OF BOARDS

APPROXIMATE AREA IN SQUARE INCHES WHICH WILL  
WEIGH ONE CWT. (112 LB.)

WOOD PULP BOARDS Basis 22 in. × 32 in.			
Substance No.	Sq. in. to cwt.	LEATHER BOARDS Basis 24 in. × 38 in.	
30	21,120	Substance No.	Sq. in. to cwt.
40	28,160	20	18,240
50	35,200	25	22,300
60	42,240	30	27,360
70	49,280	35	31,920
80	56,320	40	36,480
90	63,360	45	41,040
100	70,400	50	45,600
110	77,440	60	54,720
120	84,480	70	63,840
130	91,520	80	72,960
140	98,560	90	82,080
150	105,600	100	91,200
160	112,640	110	100,320
170	119,680	120	109,440
180	126,720	130	118,560
190	133,760	140	127,680
200	140,800	150	136,800
210	147,840	160	145,920
220	154,880	170	155,040
230	161,920	180	164,160
240	168,960	190	173,280
250	176,000	200	182,400
260	183,040		
270	190,080		
280	197,120		
290	204,160		
300	211,200		

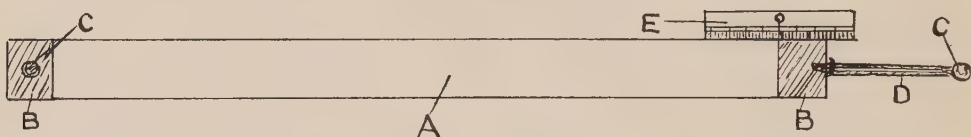
## AIR CONDITIONING FOR PRINTERS

TWENTY years hence there may be but little necessity to enlarge on the title of this chapter, for as inevitably as the steps in the progress of the art preservative have followed from the wooden press with the manual operator to the modern press with automatic feed and electric drive, so will it follow that every printing office employing more than twenty employees will be equipped with apparatus for providing an appropriate atmosphere for carrying on the work of the establishment.

Every printer "feels the weather" at times, and it may be stated broadly that everything that the printer uses is affected by the weather. Wooden materials are liable to shrink during dry spells and to expand when the conditions are unduly moist. The metals of the printing office are affected by differences of temperature and of moisture, but the changes are seldom of such magnitude as to cause inconvenience. Rollers, inks, and coatings for litho plates are unstable when there are changes of temperature and humidity. Paper contracts when exposed to dry air, whether hot or cold, and expands quickly when the air is moist, no matter what the temperature. "Dry" and "moist" are scarcely exact terms in speaking of air, since it will never be the experience of British printers to encounter air in the printing office entirely free from moisture—which would be recorded as being 0 per cent relative humidity—nor will they find that the air is saturated with moisture—or has a relative humidity of 100 per cent. But without giving a complete statement of the possible variation in relative humidity, it will be sufficient to indicate a simple method of demonstrating the effect of varying moisture content upon one of the important

materials employed by printers. If the observations are made during a spell of wet weather, especially if there are intervening days of heat (or intense cold), there will be such variations as to convince the doubter that atmosphere must be reckoned with.

Take a sheet of sized paper from which strips 20 in. or more in length can be cut. The strips need be but 2 in. in width. Study the strips before proceeding, in order to discover which is the machine direction of the paper; sometimes machine direction is referred to as the grain of the paper. If an inch of a strip is wetted *on one side* it may commence to roll up, or else to form itself into a U-shape at the end. The latter action



METHOD OF OBSERVING THE EFFECT OF VARYING HUMIDITY  
UPON A STRIP OF PAPER

indicates a strip cut with the grain of the paper, or in the machine direction of the web. Take a strip from the cross direction, which is at right angles to the grain. The diagram will now make all clear. *A* is the strip of paper, *BB* are reinforcements of gummed paper tape, *CC* are drawing pins, and *D* is a thin rubber band fastened to the right-hand reinforcement, and stretched over the second drawing pin. The paper is thus under slight tension. *E* is a small section of a finely divided rule upon which is read the actual expansion or contraction of the strip of paper, the zero being at the junction of the gummed tape, and there are plus and minus figures. The diagram shows the strip as arranged upon a flat bench, but, if it is preferred, it may be suspended in a vertical position and be allowed to hang free, a small weight, about one ounce, being attached to the lower end of the strip.

Observation of the plus or minus readings should be made and recorded, and from the table compiled some knowledge may be acquired of the behaviour (or misbehaviour) of paper under varying conditions of the atmosphere. Under extremes of dryness or moisture the readings will be high, and to demonstrate these conditions the strip may be rapidly damped with a sponge, and after return to normal condition it can then have a hot iron passed over it. The variations from the zero reading will be interesting and informative. The figures obtained should be calculated as a percentage of the length of the strip. If the strip is 25 in. between the strengthening slips, and the scale is in 32nds of an inch, each division of the scale will represent  $\cdot 125$  per cent, and the calculations are readily made. It is to be expected that there will be different results for different papers, and the investigation may be carried further by using a strip from the other direction of the sheet.

The investigation of papers has been facilitated by a special piece of apparatus—Fenchel's testing machine, by which the maximum expansion of paper is instantly recorded on the immersion of a strip of paper. The Year Book of the London School of Printing, 1929–30, gives figures for different printing papers.

Having given so much information upon paper, it will be well to add some notes upon the other materials affected by changes of weather. Inks which dry by evaporation of the vehicle—ruling inks, photogravure inks, and water-colour-inks—will dry more rapidly in a very dry atmosphere. Ordinary printing inks, which dry partly by absorption and partly by oxidation, will not readily dry in a moist atmosphere. Composition rollers, however “weather-proof” they may be, will harden if the air is too dry, and will not be efficient as inkers or distributors if the air is charged with moisture.

Photo-lithography, depending upon the use of sensitized metal plates, produces problems in the lack of uniformity when change takes place in atmospheric conditions between the preparation of different plates.

Air conditioning is a term applied to the control of atmospheric conditions. It is extensively employed in cinemas, and other places of entertainment, for the comfort of their patrons, and business establishments have installations for the benefit of processes, and also for providing better working conditions. In many factories there is some form of air circulation and/or conditioning of the air circulated.

It is readily understood from what has already been said above that air may be dried, moistened (humidified), heated, or cooled. It is usual to consider two conditions in regard to the air of an enclosed space, such as a workroom: its temperature and its relative humidity. The two conditions have some relation to one another, for without altering the moisture content of the air its *relative humidity* is increased if the temperature is lowered, and decreased if the temperature is raised. But if the air, during conditioning, be passed through a refrigerator, moisture is extracted and the air which passes forward is drier and may be heated, if desired, without increasing the quantity of moisture in the air. Cooling with water or refrigeration, and reduction of relative humidity by refrigeration or heating, are the means adopted by ventilating engineers for establishing the conditions of atmosphere desired by the printer. There are several specialists ready to advise printers on the simplest means of effecting the control of the atmosphere of factories: a temperature of 65° F. with relative humidity of 65 per cent is a reasonable standard. If a simpler plan is desired, a maximum temperature can be adopted, such as 80° F. for summer, with 65° F. as standard, which may

simplify the problem considerably. But all departments where any operations are conducted or in which materials are stored should be included in any system of air conditioning if the maximum of efficiency is to be attained.

A quotation from a trade journal will serve to close this chapter—

“Atmospheric uniformity means—paper neither shrinks nor stretches; rollers neither swell nor shrink; presses cease clogging; wooden furniture stops warping; register is perfect; presswork is speeded up; production is improved in quantity and quality.”

## CHAPTER XI

### BOOKS DEALING WITH PAPER

PAPER manufacture is a subject which has received attention from a number of writers, and but few of the books have the same view point. Therefore, the list which follows is offered with this advice: Buy one book and study it closely, and take an early opportunity to read as many as possible of the remainder. In London, the Patent Office Library and the technical library of St. Bride Institute afford facilities for consulting most of the books detailed. In the provinces, also, there are libraries which contain a good selection from the list, and librarians are always open to suggestions for adding to their stock of technical works.

TITLE	SUMMARY OF CONTENTS
<i>Chemistry of Pulp and Paper Making.</i> By Edwin Sutermeister, S.B., price 40s. 6d.	A modern work, dealing with American methods of pulp and paper production, with a chapter on printing processes.
<i>Classification and Definitions of Paper.</i> By F. A. Curtis and Clarence J. West, 7s. 6d.	An American dictionary of paper and boards; there are divergences from the usual British definitions.
<i>Modern Paper Making.</i> By Robert Henderson Clapperton and William Henderson, 31s. 6d.	The most recent work on paper-making by paper makers, embodying modern methods; well illustrated.
<i>Mortimer's Ready Reckoner,</i> 3s. 6d.	In addition to being a ready reckoner for the printer and paper man, there are many tables of equivalents and much useful information.
<i>Paper and Its Constituents.</i> By H. A. Bromley, 15s.	Deals with the materials which are in use by the paper maker, including the various pigments and aniline colours.

- Paper and Its Uses.* By Edward A. Dawe.  
Vol. 1, Text; Vol. 2, Samples.  
12s. 6d. complete.
- The most useful book for printers, giving a very comprehensive explanation of the manufacture, use, and testing of paper, and a valuable set of 150 samples of paper and boards, with prices and other details.
- Paper : Its History, Sources, and Manufacture.* By H. A. Maddox, 3s. net.
- A popular treatment of the subject, in Pitman's *Common Commodities and Industries Series*.
- Paper Mill Chemist.* By Henry P. Stevens, 10s. 6d.
- Details of methods of testing all the materials used in the paper mill.
- Paper Technology.* By R. W. Sindall, 21s.
- An exhaustive compilation of information on the technology of paper, with numerous illustrations.
- Paper Testing and Chemistry for Printers.* By G. A. Jahans, B.A., 12s. 6d. net.
- A textbook for the student printer on the raw material of his craft.
- Practical Paper Making.* By George Clapperton, 7s. 6d.
- A book for paper makers, but readily understood by the paper user.
- Practical Studies for Paper Manufacturers.* By Sheldon Leicester, 21s.
- Contains a large amount of information and exhaustive tables. Instructive to printers as well as to paper manufacturers.
- Text Book of Paper Making.* By Cross and Bevan, 30s.
- The standard work on paper-making. Contains a valuable chapter on cellulose, many excellent illustrations of fibres, and a very full bibliography of works in English, French, and German, and covers the subject of paper-making as a whole.
- Treatment of Paper for Special Purposes.* By L. E. Andés, 10s. 6d.
- A book dealing with the manufacture of special papers: photographic, marbled, safety cheque, etc.
- The Digestion of Grasses and Bamboo for Paper Making.* By W. Raitt, 21s.
- A recent work, containing the latest developments in the utilization of grass as a paper-making material.



SECTION IV  
PRINTERS' ACCOUNTANCY

BY

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## CHAPTER XII

### PRINTERS' ACCOUNTANCY

It is a very far cry from the rude practice in Italy by Pacioli and others in the late fifteenth century to the modern system of book-keeping and accountancy. It may be said, however, that the fundamental principle, that of recording two aspects of every transaction, is still faithfully observed. Double-entry book-keeping, as it is known to-day, does not necessarily imply the making of a debit entry simultaneously with the recording of its corresponding credit; instead, the actual completion of double entry in numerous instances may only be effected at the very close of the accounting period. It should be understood that, whatever particular system of book-keeping is adopted, sooner or later the setting up of the two aspects, which must arise out of every transaction, must be effected.

By far the most far-reaching change in recent years has been the introduction of loose-leaf and card records in place of bound books, and the fact that such conservative institutions as Banks and Insurance Companies utilize loose-leaf (or "slip" or "voucher") methods is an indication of their greater utility and efficiency.

It might be emphasized that the system which is outlined in the following pages is intended to apply to a general printer of medium size, that these notes cannot and do not presume to deal exhaustively with the subject, and that deviation from the system could very well be practised to meet peculiar circumstances of any concern. It should be pointed out, however, that no attempt is made to import into this section any of the

technique of printing, and that consequently estimating and cost finding are not dealt with.

#### ORDER

All material of whatever kind must be ordered by means of an Official Form, preferably one bound in an Order Book and torn out after completion, leaving a carbon copy behind it. This Order Form should indicate the commencement of the path which goods take in their journey from the supplier through the business, and eventually into the hands of the customer; consequently, the more description, prices, and other relevant information it contains, the better will be the whole system. There should, wherever practicable, be a person who is solely responsible for the placing of orders or the authorizing of them.

#### RECEIPT OF GOODS

The person receiving goods will enter description, quality, quantity, and supplier of goods into a Goods Inward Book as soon as each consignment is received. In due course (*a*) this book (or carbon copies of the entries regularly supplied to the office), (*b*) the invoice received from the supply house, and (*c*) the order given in the first place will all be the subject of comparison. Receipt of irregular goods would, of course, give rise to enquiry, but if the three documents just mentioned agree in all respects, the invoice may be passed for payment at due date. It is a plan used by many to clip off the right-hand top corner of the carbon order sheet to indicate that the goods contained thereon have been received and are satisfactory in all respects; the carbon order sheets whose corners stand out unclipped show at any time the orders not executed. Many concerns, however, use a special book in which are inserted records of orders placed, with entries in

appropriate columns of notes of deliveries (with dates), suppliers' invoice numbers, etc.

The Goods Inward Book will be one of the means of building up the

#### STORES LEDGER

which is a record of goods or material in hand. One page therein is devoted to each class of material, and the simple form of ruling facing page 166 will explain its use. This Stores Ledger is a check upon the actual possession of goods, but the financial side of the business requires a

#### PURCHASES BOOK

which is, in effect, a list of all goods bought which are consumed in the business, so that the Final Accounts of the concern may eventually be drawn up without reference to a mass of cumbersome detail. The purchases record is, in effect, a list giving the total of all purchases during the accounting period. It not only serves as a basis of acquisition of goods expressed in terms of money, but it serves as a means of raising the liability of the concern to the suppliers. Here you may notice the first mention of what is, in effect, the double-entry system of book-keeping; the purchases record (commonly called the Purchases Journal or Bought Day Book) is by some concerns still bound as a separate book. Very many businesses still adhere to the use of a book recording each purchase separately, such as—

Date of Receipt	Suppliers		Folio	Amount of Invoice		
19.. Sept. 28	East & West, Ltd.	Details of goods bought may be inserted here.	52	£ 18	s. 10	d. 7
„ 29	North, J.	Do.	98	46	2	5

Thus, each invoice received is separately entered, after being checked; each entry in this book is "posted" (or transferred) to the credit (or right) side of the appropriate personal account for the creditor in the Purchases Ledger. The folio column above indicates that the first-mentioned amount has been credited to East & West, Ltd., account on page 52 of the ledger, and the second sum to North's account, which is on page 98. Each month the total of the purchases shown in this book is debited to a Purchases Account in the Private Ledger, which account is also credited with monthly totals of Purchases Returns or Allowances. It may be mentioned that many firms use an analytical or tabular Purchases Book in order to dissect goods bought into their several classes, as, for example, Paper, Ink, Binding Materials, etc.

Present-day businesses are introducing the slip or voucher system whereby all invoices received from suppliers are (after being checked with order and Goods Received Book) collated, listed, and totalled. It may be said that these last-mentioned operations are done monthly, just before the date when payment for the goods is to be made. When the total is ascertained, this sum is debited to a Purchases Account in the Ledger, and also credited to a Sundry Creditors' Account. When cheques are drawn soon after, in payment of these invoices (which, meantime, have been checked with statements of account sent out by the suppliers), only the total of such cheques need be credited in the Cash Book, and this total will be debited in the Sundry Creditors' Account. It will thus be seen that the work entailed in entering all invoices into bound books, and posting therefrom in detail to separate personal accounts of the suppliers in the Ledger, and the entering in the Cash Book in detail of the corresponding cheques with posting, also in detail, to the

## STORES LEDGER

Maximum quantity to be held.....

Minimum	”	”	.....
---------	---	---	-------

Article (or Commodity).....

[illegible]

NOTE ON ABOVE: Each article or commodity normally kept in stock will be given a separate page in the Stores Ledger. The ruling here given is divided into four sections, but the first ("Ordered") may with advantage be discarded if there exists other record of goods ordered.

The "Received" section is entered from the Goods Received Book, previously mentioned, and shows deliveries into stock; when material is required for the execution of a job, the employee requiring it will hand to the Storekeeper a "Requisition Slip" (signed by somebody with authority) and receive the required material in exchange. The Requisition Slips are entered into a Goods Issued Book, each entry in which is, in due course, transferred to its appropriate account in the Stores Ledger (third section). The balance of the commodity then shown on hand should be inserted in the fourth section, and thus be ascertainable at a glance.

After any entry is made in a Stores Ledger account the balance of the commodity then shown on hand should be inserted in the fourth section, and thus be ascertainable at a glance. The Requisition Slips are afterwards recorded on the appropriate Job Cost Sheets to which the issued materials apply.



same suppliers' accounts, have been dispensed with in favour of a method which deals with totals only. At the end of an accounting period the trade debts owing will be shown by one total in the Sundry Creditors Account (instead of by numerous individual balances) and may thus be illustrated—

<i>Dr.</i>		<b>SUNDRY CREDITORS' ACCOUNT</b>						<i>Cr.</i>	
Mth. No.		£	s.	d.	Mth. No.		£	s.	d.
11	To Grand Total of cheques drawn in payment of suppliers' in- voices . . .				10	By Grand Total of Invoices relat- ing to Goods received this month . . .			
		1,006	2	4			1,006	2	4
12	„ Do. . . .	917	16	7	11	„ Do. . . .	942	16	7
					12	„ Do. . . .	816	12	3

the credit balance at the end of the accounting period of £841 12s. 3d. representing Trade Creditors at the balancing date, made up of £816 12s. 3d. liabilities of the last month unpaid and £25 of the eleventh month still outstanding for some reason.

Let it now be assumed that, after receipt of an enquiry by a customer, an estimate has been prepared and submitted and accepted. A job cost sheet will be made out and built up so as to bring together all the costs of labour, material, and overhead charges of the machines or departments engaged in any section of the work. The form of such a sheet and the methods of charging out time, materials, and expenses, and, in general, the whole of the system enabling the printer to ascertain the complete cost of a job could be found by a study of the book on costing issued by the Federation of Master Printers. Let it here be mentioned, however, that it is to the printer's best interests to seek constantly the avoidance of waste; the larger the works, the greater the necessity to practise economy. It is, however, in small workshops where so little attention

is paid to systematic economy. In the writer's experience waste in industry is huge. The one small suggestion which might be adopted by the printer who finds the maintenance of a Stores Ledger to be impracticable is the introduction of rack or bin cards to give visibly a perpetual inventory. These cards each deal with one type of material, and are fixed to the racks where such respective materials are contained; they may be ruled in a manner similar to the following—

**RACK CARD : MATERIAL . . . . .**

Received				Issued			Running Balance	
Order No.	Supplier's Name	Quantity	Price	To Job No.	Quantity	Price	Quantity	Price

Even such an elementary method as this should ensure that no goods are taken from stock without being charged to a job; furthermore, low stocks may be replenished almost without any trouble and a physical check of the stock may be effected at any moment. When a job has been completed, and is ready for dispatch to the customer, details of it will need to be recorded in a

**SALES BOOK**

which has a ruling similar to the Purchases Book, and contains detailed entries of all invoices rendered to customers. The total amount of each invoice is debited (left side) to the appropriate customer's personal account in the Sales Ledger, thus charging that particular customer. Each month the total of the

invoices rendered (representing sales) is entered on the right-hand side of a Sales Account in the Private Ledger, and the monthly total of any Sales Returns to the firm, or Allowances given to customers, is (besides being credited to the appropriate customers) debited to the Sales Account.

In the most common form the Sales Book is bound, but recent forms introduce loose leaves. One system permits the invoice to be copied a number of times by means of carbons; the first is the invoice to the customer, the second is attached to the job proof, others are sent to travellers and otherwise dealt with, and the last remains in the book for posting and addition, and is used as the Sales Book. The posting reference in this case is the Invoice Number.

### SPECIMEN OF PERSONAL ACCOUNT OF SUPPLIERS IN PURCHASES LEDGER

Dr.			EAST & WEST, LTD.						Cr.		
19..		Purch. Ret.	£	s.	d.	19..		Purch.	£	s.	d.
Oct. 1	To Returns	Bk. fol.	2	4	3	Sept. 28	By Purch. .	Bk. fol.	18	10	7
Nov. 1	„ Cash	Cash									
	C.B.	Bk. fol.	15	10	0						
„ 1	„ Disc't „	„		16	4						
			£18	10	7				£18	10	7

### SPECIMEN OF CUSTOMER'S ACCOUNT IN SALES LEDGER

<i>Dr.</i>			J. W. GREEN						<i>Cr.</i>		
19..		Fol. of	£	s.	d.	19..		Fol. in	£	s.	d.
Sept. 13	To Sales	Sales	41	2	3	Nov. 14	By Cash	Cash	39	1	2
„ 20	„ Do.	Book	12	7	7	„ 14	„ Disc't	Book	2	1	1
		Do.				„ 30	„ Balance	Do.	12	7	7
			<u>£53</u>	<u>9</u>	<u>10</u>				<u>£53</u>	<u>9</u>	<u>10</u>
19..											
Nov. 30	To Balance	b/f	12	7	7						

## CASH BOOK

This book is a record of all cash received and paid; on the debit, or left-hand, side should be entered the sums received: on the credit, or right-hand, side the sums paid. It should be made a rule, however, that all amounts received, whether in the form of cash or cheques, should be paid into the Bank at regular intervals and that no payments are made by the concern other than by cheque (except small petty cash payments which are unavoidable, and which are dealt with later under "Petty Cash Book"). On page 171 is a general form of Cash Book, the headings in which explain themselves to some extent; when a sum is received under deduction of discount, only the actual receipt will be entered in the "detail" column, and the discount deducted by the customer will be entered on the same line in the discount column. When several amounts are received together, they may be banked on one paying-in slip, a line is then drawn after the last sum in the amount-received column, and the total of the lodgment is entered on a level with it in the "Paid to Bank" column. The folio column will indicate the number of the page of the Ledger to which the amount received and the discount allowed will be posted.

On the credit side of the book, cheques drawn will normally be entered in the extreme right column, but discount deducted already and taken by the payer will be shown in the discount column. When a cheque is drawn to be utilized for various purposes, the "make-up" of it is shown in the detail column as in the illustration.

A check may be provided by establishing a rule that a receipt must be given in respect of every sum received, however small, and a copy of each receipt retained in a book, either by means of a counterfoil or a carbon.

# CASH BOOK

RECEIPTS.										PAYMENTS.					Cr.
Date	Particulars	Counter-foil Receipt No.	Fol.	Dis- count	Details		Paid to Bank	Date	Particulars	Receipt No.	Fol.	Dis- count	Details	Cheques Drawn	
19.. 1 Nov.	To Bal'ce b/f		Sales L'r	£ 2 1 1	£ 39 1 2	£ 523 6 7	19.. 1 Nov.	By East & West, Ltd.	413	Pur. L.	£ 16 4	£ s. d. 15 10 —			
" 14	" J. W. Green	316	135	2 1 1	20 —	59 1 2	" 5	" Wages	Wages Book	Priv. Led.	49 3 2	2			
" 14	" Black & Co.	317	98				" 5	" Petty Cash	"	P.C.	7 4 8	8			
" 20	" Burton & Son	318	102	2 10 —	47 10 —		" 8	" Proprietor's Drawings	"	Priv. Led.				56 7 10	
" 20	" A. Clements	319	127		150 —		" 12	" Wages	Wages Book	Priv. Led.	52 7 10	10			
" 21	" Harpers, Ltd.	320	149	5 —	9 15 —		" 12	" Petty Cash	"	P.C.	6 13 2	2			
" 28	" Wilson & Wilson (and so on, for remainder of month)	321	210	3 16 —			" 12	" Coloured Ink Co.	414	Pur. L.	1 8 —	59 1 — 26 12 —			
19.. 1 Dec.	To Bal'ce b/f			£ 8 12 1			" 30	(and so on, for remainder of month) " Balance, c/f				684 5 11			
				£ 8 12 1								£ 2 4 4	£ 861 16 9		
				(1)			684 5 11				(2)				

After checking the lodgments to Bank and cheques drawn on Bank with the Bank Pass Book or Pass Sheets, the Cash Book should be ruled off in the manner shown at the end of each month. The Discount total shown (1) will be posted to the left-hand (or debit) side of a Discounts Account in the Private Ledger, whilst the Discount total shown (2) will be credited to that Discounts Account.

After checking the lodgments to Bank and cheques drawn on Bank with the Bank Pass Book or Pass Sheets, the Cash Book should be ruled off in the manner shown at the end of each month. The Discount total shown (1) will be posted to the left-hand (or debit) side of a Discounts Account in the Private Ledger, whilst the Discount total shown (2) will be credited to that Discounts Account.

The number of each receipt may be shown against the sum to which it relates on the debit side of the Cash Book. So, too, receipts should be obtained for all sums paid (except where it is not thought advisable in connection with wages or petty cash). These should be numbered as received, and the numbers thereof entered against the appropriate payment on the credit side of the book.

Every sum received from a customer will be posted or transferred to the right-hand side of the account of the customer paying, in the Sales Ledger; every sum disbursed to a creditor will be posted or transferred to the left-hand side of his account in the Purchases Ledger; sums received or paid other than these will be posted to the Private Ledger to the reverse side of an account dealing with the nature of the receipt or payment.

At the end of each month, at least, the Cash Book should be checked with the Bank Pass Book and the balance reconciled; that is, the balance shown by the Pass Book should be increased by any lodgment not at that date credited to the printer by the Bank, and reduced by any cheques not at that date paid by the Bank and entered in its Pass Book. The resultant figure should be the balance according to the Cash Book. When checking the Bank Pass Book, it should be noted that charges for keeping the account, cheque books, interest, etc., included by the Bank in its Pass Book should also be entered in the Cash Book. When the Bank reconciliation is effected, the Cash Book should be ruled off and the balance brought forward to the next month.

#### PETTY CASH BOOK

As has been mentioned, no payments should be made out of takings, but any minor disbursements needed to be made should be paid from a balance of petty cash

PETTY CASH BOOK

Dr. RECEIPTS.			PAYMENTS.			Cr.			Analysis of Expenditure																	
Date	C.B. Folio	Amount	Date	Particulars	Voucher No. or Initials	Amount Paid													Ledger Accounts							
							Stamps and Tele-grams	Car-riage	Sta-tionery	Pack-ing Mate-rial	Travel-ling	Gratu-ities	Stores	Sun-dries	Cash	Discount	Folio									
19..		£ s. d.	19..			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.			
Oct. 31	Bal. b/f	11 17 6	Nov. 1	Postages		1 - -	1 - -																			
„ 31	14	8 2 6	„ 2	Carrier				5 6																		
			„ 2	Tip													6									
			„ 3	Fares, City										4												
			„ 4	Pomeroy & Co. a/c.		2 6 7													2 6 7		2 5		Purch. Ledger			
			„ 4	Paper		10 - -										10 -										
			„ 5	Postages		1 - -	1 - -																			
			„ 5	Envelopes		9 6			9 6																	
			„ 5	Fares		3 4							3 4													
			„ 5	Brown paper		1 6 9				1 6 9																
			„ 5	Sundry		2 2											2 2									
						7 4 8																				
			„ 5	Balance c/f.		12 15 4																2 5				
		£20 - -				£20 - -																				
19..																										
Nov. 5	Bal. b/f	12 15 4																								
„ 5	15	7 4 8																								
<p>The receipt by the Petty Cashier of the sum of £7 4s. 8d. above, (that being the amount of his last week's disbursements) raises his balance to the normal "float" of £20.</p>																										
<p>The totals of these columns add to £7 4s. 8d., and are separately posted to the debit (or left-hand) side of their respective accounts in the Private Ledger, such accounts being headed "Stamps and Tele-grams," "Carriage," etc.; except that the "Ledger Accounts" column, being dealt with by separate posting of each entry therein, is not posted to the Private Ledger.</p>																										
<p>Posted to credit of Discounts A/c. in Priv. Ledg.</p>																										



kept in hand. This petty cash is first obtained by drawing a cheque on the Bank and withdrawing a "float," or a sum sufficient to last until the next withdrawal. The sum then drawn for petty cash should be entered on the receipts side of the Petty Cash Book. The person disbursing the petty cash will then need to enter, in the payment side of his book, all those minor sums paid away, receiving a voucher or receipt for every such sum where at all practicable. The voucher is then numbered and entered against the entry for its payment. It will be seen that the amount paid is entered in the seventh column and *also* extended out into an analysis column dealing with the nature of its payment. At the end of a month (or week, if desired) the Petty Cash Book is ruled off and the balance in hand brought forward. The total of all the analysis columns should be the same as the total amount paid in the seventh column, and each of these analysis totals is then transferred to the debit, or left-hand, side of its appropriate account in the Private Ledger; except that in the case of petty cash sums paid away to creditors having accounts in the Purchases Ledger, the sums so paid will be extended into the Ledger Account column and posted therefrom to the creditors' accounts in the Purchases Ledger. The Ledger Account column will, therefore, not need to be posted at the end of each week or month, since each item has been dealt with separately. It is recommended by the writer that the Imprest system of drawing petty cash should be used, namely, that after balance of the cash in hand has been struck and brought forward, a cheque be drawn for the total of the disbursements of the previous week or month. This cheque is cashed at the bank and retained by the petty cashier so that his cash balance is made up to the original float; he may then commence his payments for the next week or month. By this means

the person signing the cheque should be enabled to keep in touch with the disbursements of the petty cashier, since he is compelled to ascertain the exact amount to be drawn each time in order to make up the float to the original sum.

#### PRIVATE LEDGER

This Ledger will contain all the accounts of the business, except those relating to the transactions with customers and creditors. It will thus include accounts for all assets held, such as Plant and Machinery, Fixtures and Fittings, Type, Office Furniture, and Premises. It will also include accounts for all expenses (some grouped together, however) such as rent, rates, and taxes, light and heat, and others found in the *pro forma* Working and Profit and Loss Accounts and Balance Sheet which follow. So, too, it will contain accounts for each type of purchase (paper, ink, binding materials, etc.) and for sales.

All the accounts previously mentioned, contained in this Ledger, will be built up by posting from the books of original entry, namely, the Cash Book, Purchases Book, Purchases Returns Book, Sales Book, and Sales Returns Book and (if they are in use) the Journal and Bill Book.

At the end of the financial period each of the accounts in the Private Ledger should be ruled off; those relating to current trading should be transferred to the Working and Profit and Loss Accounts (which see later), and those relative to assets or liabilities at the closing date should be balanced and brought forward for the next period. The following is a specimen of the Paper Account showing how, in ruling off, the balance of paper in hand at the close of the period should be dealt with, and the amount which has been used during the period is transferred to the Working Account.

Dr.

## PAPER ACCOUNT

Cr.

19..		Fol.	£	s.	d.	19..		Fol.	£	s.	d.
Jan. 1	To Stock on Hand brought forward	b/f	78	4	6	Dec. 31	By Stock of Paper, at year-end at cost or market price (which-ever is lower), carried forward	c/f	96	18	1
" 31	" Purchases (total of "Paper" column in the analytical Purchases Book)	P.B.	52	3	10	" 31	" Balance of this A/c, being cost of Paper used during year, transferred to Working Account				
Further monthly totals entered until year-end, those for remaining months totalling, say .			610	13	2				644	3	5
			£741	1	6				£741	1	6
19..											
Jan. 1	To Stock on Hand brought forward	b/f	96	18	1						

It might be mentioned that the Private Ledger is that book which contains the accounts of all expenses and assets; those accounts, dealing individually with each type of expense incurred by the concern, are known as "nominal" accounts, and examples of these are "Rent," "Rates and Taxes," "Lighting and Heating," "Salaries," etc. The other accounts, those dealing with assets, are known as "real" accounts, and these individually show the worth of the assets held, such as "Plant," "Machinery," "Type and Accessories," "Fixtures and Fittings," etc.

At the end of the financial year only the nominal accounts are transferred to the Working and Profit and Loss Accounts (which are, after all, only summaries of the foregoing nominal accounts). These nominal accounts are closed off in the manner shown in the Paper

Account just mentioned. It often happens, however, that the total expense of one type during the financial period has not been completely shown in the account dealing with that expense, inasmuch as part of that expense is owing at the end of the year. Such accrued liabilities, as they are called, need to be brought into the figures before the Working and Profit and Loss Accounts are completed; otherwise the final figures will not show the true charges for the period. The following Advertising Account will indicate how to add the outstanding cost to the debit side; rule off the account by transferring the enlarged expenses to the Profit and Loss Account, and bring forward the unpaid amount as a credit balance.

The Working and Profit and Loss Accounts which follow can be built up from the books and accounts mentioned previously, and, to some extent, explain themselves. It should be clearly understood, however, that at each accounting date exact stock must be taken and, if that stock is not brought into the accounts of the commodities, as in the case of the Paper Account mentioned, it must be put into the Working Account in the same way as the work in progress there shown. In other words, if the stock of any commodity is not dealt with individually in the ledger account of that commodity, add the commencing and closing stocks to the work in progress at the beginning and end of the period respectively in the Working Account. The consistency of the rate of gross profit earned on turnover is very important, and, indeed, percentages on turnover of all the expenses shown in the Profit and Loss Account should be worked out and compared with similar figures of previous periods, so that any unusually large rise or fall may be enquired into.

The Profit and Loss Account may show on its credit side certain minor receipts. These receipts may



include rents receivable, profit on sale of investments, etc.

Before completing the Profit and Loss Account, allowance must be made for depreciation. This is done by calculating the wear and tear on each class of machinery and writing off the total wear and tear from the account of the asset concerned; for instance, the credit to Plant and Machinery Account will reduce the amount of the asset shown therein to its new level, and the depreciation so credited must be transferred as an expense to the Profit and Loss Account, thus completing the double entry in respect of it. Normal rates of wear and tear are—

Electric motors—10% to 12½% p.a.

Printing and binding machinery—7½% to 10% p.a.

Engines, boilers, and shafting—10% p.a.

Fixtures, fittings, and furniture—5% to 10% p.a.

(According to their nature.)

If any leases, patents, or copyrights are held, the Asset Accounts in respect of these should be written down by annual instalments during the period for which the assets are in existence. Type is often re-valued annually and brought forward as an asset on the Type Account, any resulting deficiency or loss being transferred to the Profit and Loss Account as an expense. Many printers, however, depreciate their type at 10 per cent to 15 per cent per annum, at the same time adding to the value of the type all new purchases; while others leave the type at one value on the Type Account and charge all replacements and renewals of it to a Replacement Account, the total of which is transferred at the end of the year to the Working Account. The valuation method has many advantages, but its chief disadvantages may be the time spent in the valuation, and the probability that this valuation may be only approximate.

After having transferred to the Working and Profit and Loss Accounts all balances on nominal accounts, the net profit eventually shown is transferred to the account of the proprietor, which is called the Capital Account. To the Capital Account should also be debited or charged the amount of the proprietor's personal drawings for the period.

**WORKING ACCOUNT FOR YEAR ENDED 19..**

*Dr.*

*Cr.*

	£	s.	d.		£	s.	d.
To Paper . . . . .				By Sales . . . . .			
„ Ink . . . . .				„ <i>Deduct</i> work in progress			
„ Outwork . . . . .				„ at commencement . . . . .			
„ Wages . . . . .							
„ Sundry Materials . . . . .							
„ Power . . . . .				„ <i>Add</i> work in progress at			
„ Repairs to Machinery . . . . .				„ end . . . . .			
„ Renewal of Type . . . . .							
				Output =			
Total Factory Cost =							
„ Balance, being Gross							
Profit carried to Profit							
& Loss A/c. . . . .							
£				£			

**PROFIT AND LOSS ACCOUNT FOR YEAR ENDED**

*Dr.*

**19..**

*Cr.*

	£	s.	d.		£	s.	d.
To Rent, Rates, and Taxes				By Gross Profit brought			
„ Salaries . . . . .				„ forward from Working			
„ Light and Heat . . . . .				„ A/c. . . . .			
„ Telephone and Insurance							
„ Travelling . . . . .				„ Discounts received . . . . .			
„ Stationery . . . . .							
„ Repairs to Premises . . . . .				„ Other Receipts (details)			
„ Carriage . . . . .							
„ Advertising . . . . .							
„ Legal and Accountancy . . . . .							
„ Discounts Allowed . . . . .							
„ Bad Debts . . . . .							
„ Depreciation of Plant . . . . .							
„ Depreciation of Fixtures . . . . .							
„ Depreciation of Lease . . . . .							
„ Reserve for Bad Debts . . . . .							
Total Expenses =							
„ Balance, being Net Profit							
carried to Capital A/c. . . . .							
£				£			



adopt a different lay-out, principally in the direction of showing capital in detail as a fixed sum, and reversing the order of assets and liabilities.

Other books in use in modern business include

#### THE JOURNAL AND THE BILLS BOOK

The former is only rarely used, since much of its usefulness has been taken away by the Purchases and Sales Books. It is now used for the recording of very special transactions.

The Bills Book records details concerned with bills of exchange which have been received or accepted (known respectively as "Bills Receivable" and "Bills Payable"), and is used as a medium for posting the amounts of such bills to the accounts of those concerns from which they were received or to which they were given.

#### INCOME TAX

Upon the accuracy of the Working and Profit and Loss Accounts and Balance Sheet will depend a good deal of the liability of the business to Income Tax. The printer who himself presents to his local Inspector of Taxes a copy of his Working and Profit and Loss Accounts will remember that the net profit shown by him will not necessarily be the amount of his assessment. That net profit may need to be adjusted in many respects in order to bring it to the sum properly chargeable to Income Tax. Before arriving at the net profit the printer may have included in his account items of a voluntary character (such as donations) or of a capital nature (such as additions to his plant or premises), or sums which are not wholly necessarily or exclusively laid out by him for the current purposes of his trade. In the last-mentioned category we might include part of the premises used otherwise than for business purposes, legal charges incurred in obtaining

a renewal of the lease, use of a motor-car by the proprietor for personal purposes, etc.

The printer will find that the depreciation charged by him will not necessarily be permitted by the Revenue Authorities, who will calculate their own wear and tear allowance, which allowance will probably be lower than that of the taxpayer. The rates of depreciation which have already been mentioned are somewhat akin to those given by the Inland Revenue Authorities, but it may be pointed out that, in exceptional cases, increased rates may be obtained. For instance, special machinery of a delicate nature, of which, perhaps, the life is short, may be the subject of a claim for a much increased rate of wear and tear. As a rule, the type used by the printer is dealt with on the "renewals" basis—that is, so long as he does not increase the capital worth of his type as a whole, he is permitted to charge the cost of replacements and renewals in his Working Account as an expense.

Printing businesses are assessed in that section of the Income Tax administration known as Schedule D, and the assessment for one year (the Income Tax year runs from 6th April to 5th April) will be based upon the adjusted net profit as shown by the printer's Working and Profit and Loss Accounts for the previous year. It may be mentioned that special provisions exist for the assessment of businesses which cease, or which sustain a change in their constitution (such as the admission of partners or transfer to a Limited Company), and it will be realized, too, that, for a business newly set up, special rules must apply concerning the assessment for the first few years.

Losses, as adjusted for Income Tax purposes, may be dealt with in several ways, one of which is to carry them forward so that they may be set against the assessment on future profits.

SECTION V  
PRINTERS' SALESMANSHIP  
BY  
THE GENERAL EDITOR



## CHAPTER XIII

### PRINTERS' SALESMANSHIP

THERE exists to-day, and one may safely predict there will always exist, an urgent demand for men who possess that special combination of abilities which enables them to induce others to buy the goods they have to sell. Here and there a man may be found who, without training, reveals a natural aptitude to sell. But in such instances it is often a grouping of fortuitous circumstances that has enabled his latent powers to function. He may be handling an article for which he possesses a peculiar aptitude to sell, or he may be moving among a class which he is able to influence by his personality, manner, or social standing. Hence he has found his niche without seeming effort, and must be accounted fortunate.

But the world is made up of average men.

In the main, a salesman has to deal with average common-sense business men, and in the long run average common-sense methods make for success in salesmanship.

Common sense applied to selling is a big thing, for it connotes that the salesman relies not on intuition or cleverness or even smartness to sell his wares, but upon his own well-directed efforts.

Yet a salesman needs to be a man of vision, and believing that the goods he has to sell are needed somewhere. His special work and purpose is to find where that need exists, and then to satisfy it to the advantage of those to whom he sells, and to his employer, and also to himself. This threefold obligation forms the only foundation on which a salesman can safely build.

## THE NEED FOR PREPARATION

This treatise is intended primarily for young men—and especially for those employed in the great printing industry who wish to prepare themselves to become printers' salesmen. Its purpose, therefore, is to endeavour, as logically as is possible, to carry the young salesman through the stages of self-preparation on to the point at which he feels that he can trust himself to venture on a career which offers many opportunities for advancement, but only to those who are prepared to work hard, study hard and patiently and persistently devote their whole energies to it—the career of a printers' salesman.

A favourable issue rarely results from chance, but from careful preparation directed to the attainment of a definite purpose.

Individuality or personality enters into salesmanship for good or ill—no two men can sell in like manner.

It is impossible to define a sales personality, but we are forced to recognize its existence, and it can be discovered by experience alone. It is much more than simply a pleasant manner, good address, and a natural aptitude to get on well with other people, although these are important and valuable assets in a salesman.

In every walk of life a man's personality is expressed by the skill, wisdom, and judgment with which he plays his part.

It is useless to endeavour to assume the characteristics of another, but absolutely essential to develop a naturalness which is unmistakable to others.

Usually the young man who makes salesmanship his choice of a career, and is prepared to fit himself for it by every means possible, has an aptitude for salesmanship, but the young man who drifts into selling because he can find no other work to do is courting failure.

Salesmanship calls for men of purposeful character, strong determination, and an optimism that is strong enough to persist, although success is long delayed.

THE NECESSITY TO OVERCOME THE SENSE  
OF FEAR

To the young salesman standing on the threshold of his career the sense of fear is dominant. The very indefiniteness of a salesman's life is at first rather disconcerting. In the printing office, or in the print-shop, definite work has been done, which, to a certain extent, was routine in its character. To the beginner, therefore, salesmanship appears like setting sail on an uncharted ocean on a voyage of discovery, and that, indeed, is partly true. In a short while, however, the young salesman will find that the seeming waste is not so trackless as he first thought, and that others before him have ventured on a similar quest and, from a wide and long experience, have gained a knowledge of the seeming waste, and discovered a navigable channel along which they have steered to a new land of hope and promise.

Fearlessness, of itself, is not a virtue. In reality it often leads one into difficulties and dangers, while a proper sense of fear, sensibly and intelligently controlled, often gives balance. This early sense of fear can and must be dominated by purpose. It must be faced and grappled with logically. To do this, it is necessary to develop in the mind something bigger and stronger, viz. plan and purpose.

At the very beginning, purpose must control passing feelings. Control of oneself must be gained under any and every circumstance. Fear will vanish only when faced by the stronger forces of the will.

THE HABITS OF WORK, HEALTH, AND STUDY

The three habits which the young salesman would do

well to cultivate in the very early days of his career are—

The Work habit.

The Health habit.

The Study habit.

Work hard, play hard, and study hard. The head of a business will soon notice if a new salesman is a worker or not, and the customers he endeavours to serve will also quickly find out his real value. The quality of the work a young salesman does in the privacy of his own room is most important. It will reveal itself in his talk and manner, and also in the readiness with which he is able to make helpful and thoughtful suggestions where required. The real worker is sure of support, for he will attract to himself others of like calibre.

At first the work a printer's salesman sets out to do appears intangible, for he is not selling something of a definite nature which can be sold on its apparent merits, but he has, first of all, to persuade somebody to let him handle their printing requirements and permit him, if necessary, to give it an original touch, or convince them that his printing knowledge and services are of value and worthy of their consideration. Tangible results will assuredly follow if a printer's salesman's work is purposefully and intelligently directed.

Good health is necessary to a young salesman. A healthy body bespeaks the healthy mind. There is an attractiveness about a healthy young man that radiates good fellowship, and in the realm of salesmanship this is a great asset.

Develop the study habit in youth and endeavour to keep it all through life. It keeps the mind receptive. Solid reading and clear thinking enable one to meet men of differing mentalities and deal with them in the right manner, and mentally to enjoy the encounter. Study will also open many doors that are fast closed

to the man who lets his mind run along one groove, and who is satisfied that he has amassed all the knowledge that is needful to him in his business.

Young salesmen will find that the majority of successful men are keen students, always seeking new knowledge of men and things.

#### THE MENTAL PROCESSES WHICH PRECEDE A SALE

Although it may appear illogical to advance suggestions for controlling an interview with a prospective client, before giving to the young salesman some assistance in securing the interview, further thought will prove its value. A salesman needs to be confident that, should he secure the desired interview, he can so present his case that it will secure an attentive and sympathetic hearing.

The mental processes through which a successful interview passes are—

- 1st Attention.
- 2nd. Interest.
- 3rd. Desire.
- 4th. Confidence.
- 5th. Action.

In some instances, where success attends the first efforts of a salesman, the mental processes are passed over quickly. The buyer may actually want just the very thing the salesman has to sell.

Or a printer's salesman, at the first interview, may show a prospective client just the idea he has been looking for, and then the stage where it is necessary to gain his confidence is quickly reached, and, when this has been gained, the sale is almost sure.

Usually, and especially in selling printing, the progress through these mental processes is much slower. It often takes quite a long time to get the favourable

attention of a buyer. Until this is gained no progress can be made.

Attention means a bending of the mind voluntarily. By action, manner, or words, a salesman must first endeavour to bend his prospect's mind towards the proposition he has to make.

It is possible to call repeatedly on a prospective buyer, even to shake hands with him and talk pleasant generalities, without ever gaining his serious attention for a moment. Something definite is required—some proposition which will cause him to think and stimulate his imagination. His mind must be made to bend towards the definite purpose of the call. To secure this it is necessary to say or do something that is arresting. This calls for thoughtful preparation designed to secure a definite reaction from the buyer.

When the salesman has the buyer's mind concentrated on his proposition, he should then endeavour to arouse his interest in it. The attitude of attention may pass quickly, and the interview be closed almost abruptly, if the proposition is not supported by something of definite business interest to the buyer.

The ordinary "Good morning, sir, have you any printing for which we can submit a quotation," usually causes an unfavourable reaction in a buyer's mind. What he is wanting is something helpful—it may be something novel, something fresh, some tangible reason why he should change his present printer. It is part of the salesman's work to find some point that has reason in it, that will almost command attention from a special buyer. If he can get this he will soon have the prospect interested.

In the first instance it may be that attention can be gained only through the medium of the girl or office boy behind the screen. Merely sending in a card in such a case is courting refusal. It may be that you do

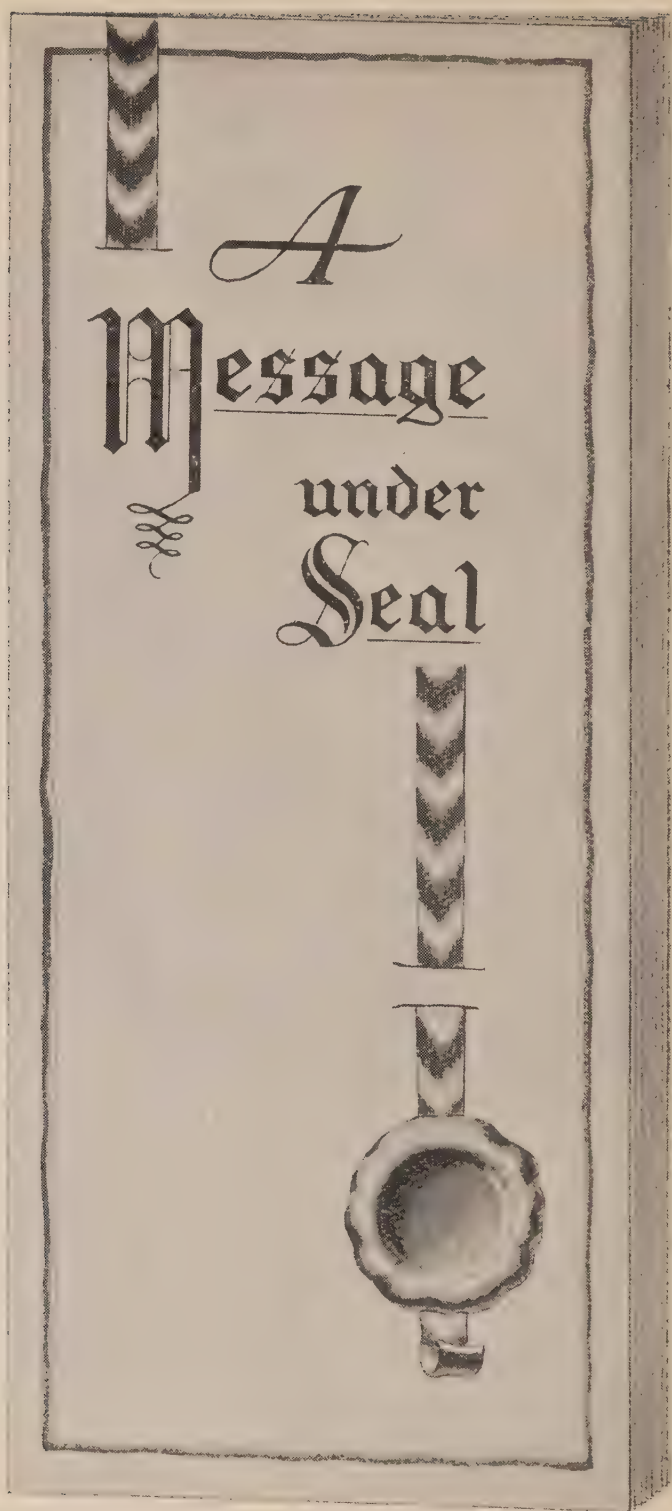
not even know the name of the buyer. If such is the case, ask in your most gracious yet authoritative manner for his name, and, if you get it, follow with the request that Mr. —— will see you for a moment, as you have a matter of special interest to him, and be absolutely ready with your prepared suggestion and opening sentence.

Suppose that it is a suggestion for a booklet, comprising 16 pp. and cover, with something striking yet simple in treatment, as on page 192.

You should have ready a provisional price per 1,000 for printing the cover in two colours and the inside in one and two colours for, say, 5M, 10M, 20M, and 50M, based on the actual papers of which the dummy is made up. The final estimated price will naturally vary somewhat according to the amount of matter and illustrations inside, but you are ready, if necessary, to give the buyer not a binding price, but a good idea as to the cost of the suggestion you are putting before him. If interested he will naturally wish to know this.

If Mr. —— comes out to see you or admits you to his office, commence directly after the usual salutation with your opening sentence, "We have prepared this suggested booklet for your consideration and shall be very glad to know that it appeals to you." If the buyer takes your proffered dummy and opens it, you have passed the first stage "Attention." The next stage is "Interest."

Or you may select a special sample of printing to show, or a unique show outer, or a cut-out, or a suggestion for a series of blotters. It may be that your firm have a speciality such as advertising seals, or the printing of letter headings or labels, or cartons. Find an attention-compelling point in one of these when seeking for a first interview. Do not generalize at the outset.



DESIGN FOR A BOOKLET COVER  
(See page 191)

Only to the salesman who grasps the idea that attention is the first step will the attention-compelling ideas occur. He delves into the psychology of selling and finds hidden away in everything he handles some attention-arresting point and message.

The interest aroused in the prospective buyer's mind is usually that of advantage to himself—almost as though one could hear him say "There's something in this for me." Give the buyer time to ask a few questions just here. It may be about price, colour, time required for production, or suitability of papers, etc. Answer them promptly, without undue pressure. He may be interested in the idea, and yet want to turn it into a folder, or link it up with a scheme he has in mind. Listen, and endeavour to be helpful. Remember it is not just the idea you place before him that you want him to accept entirely, but also that you may interest him in your printing service.

Should your prospective client resume his seat and examine the details of the suggestion you have placed before him, you will know that interest has turned to desire. He would like something on the same lines and begins to examine how his matter will fit. Here, again, it is the helpful attitude on the part of the salesman that tells, and if he is also possessed of practical printing knowledge it is at this point where it will be most helpful. Remember, again, that your prospective client's mind is working, and mentally follow him as carefully as you can. Keep to the points he raises so that he is assured that you can put into practical shape his suggestions.

It may be that some doubt may arise in your client's mind even yet, that, as he knows nothing of your firm, he is not assured that the quality of your work is up to the standard he requires. With a few words about the equipment of your printing office, backed up with

specimens of similar work you have already produced, his confidence in the capabilities of the works behind your sales talk should be well established. If by your good salesmanship and practical knowledge you have gained his confidence, you may then press for some definite action.

Even here care is needed, for there may be a tendency on the part of the prospect to delay a definite move.

Tact and gentle pressure may be required, but a well-directed attempt to obtain specific instructions that will enable you to call again within a few days, with a definite price for the quantity required and with a new dummy, if necessary, embodying the suggested alterations, should not go unrewarded.

The salesman will experience a thrill of pleasure when he has gained his objective in such an encounter, for it has been gained by definite, intelligent, and well-planned effort.

#### THE VALUE OF COMMERCIAL KNOWLEDGE TO A SALESMAN

To a printer's salesman, practical printing knowledge is most useful, and in some cases essential, but it needs to be seasoned with commercial acumen. A salesman is a commercial man. He therefore requires to possess sound commercial knowledge. The conduct of trade is governed by laws. A careful study of "The Sale of Goods Act, 1893," should therefore form a part of the early training of every salesman. The knowledge so gained will prove a tower of strength in many difficult situations. It will also reveal to the beginner in salesmanship the firm foundations upon which most commercial transactions are based. Especially should attention be given to the law which governs offer and acceptance, for this is closely connected with a salesman's calling,

and he should know that for a contract for the sale of goods of the value of £10 and upwards an official order, or some note or memorandum, signed by the buyer, is desirable ; also the conditions stated on an order need to be carefully read and considered before acceptance. A little time spent in the study of the commercial pages of the daily paper will soon lead to a greater grasp of business problems and possibilities, and broaden the commercial vision.

A large buyer is usually a keen commercial man, watching markets closely and following the tendencies of trade, and he will soon detect whether a salesman is gifted with commercial instincts, or whether he is limited in his knowledge and vision to the boundaries of his own calling.

A wide and accurate commercial knowledge helps to make a salesman acceptable to buyers who purchase in large quantities. Whatever time a young salesman spends in gaining commercial knowledge will be repaid many times over in the years that lie ahead.

#### THE HUMAN ELEMENT IN BUSINESS

In all business transactions the human element is a big factor. The salesman therefore needs to think not only of the goods or services he is endeavouring to sell, but also of the point of view of his prospect regarding them, and he must endeavour to find it. This is not easy, for many buyers worth cultivating are not very communicative. Usually, as regards printing, they require to be shown new ideas if purchasers of advertising literature, or some advantage in price or service or quality if buyers of regular factory supplies, or, if contemplating internal reorganization, some improved type of office stationery.

It is an accepted fact that the human mind has one dominating impulse at a time, and a salesman who can

detect this in a prospective buyer is to be counted fortunate, for it implies that he has, at least, a little knowledge of human nature, and also the faculty of observation.

In practically all selling transactions the human element looms large and is often a deciding factor. To understand the human complex is a lifetime's study and intensely interesting to a sincere student. Many of the hurts in a salesman's life would be considerably mollified by a modicum of human understanding.

Few men are not dominated by moods. In business, men are at times dominated by some problem that perplexes them, and resent the intrusion of other matters of lesser importance. Yet these matters of lesser importance are of interest to them when the dominating problem has been solved.

This is the field in which the salesman has to work—so varied and disconcerting—but to the real salesman, who is a student of human nature, it affords a most interesting and intriguing experience. It is a world of change and variety in which few are really at home, but those few are the real salesmen.

#### OBSERVATION AND EXPERIMENT

Accurate observation calls for a trained mind. We all pass unnoticed many things of beauty and interest because they make no contact or association with other thoughts in our minds.

There is a vast difference between intelligent observation and idle curiosity. In the one we bring all our previous knowledge and experience to bear upon whatever we may see, and, in the other, we simply permit influences quite outside ourselves to give us pleasure or pain without making any mental effort to understand them. It is certain that the trained observer sees much more than the casual onlooker,

and, what is perhaps more important, gets the right impression.

Observation by itself is of little value, but if the results of observation are put to the test, and found to be accurate, then a big step forward has been made.

The young printer's salesman, by observation of the class of printing a certain firm is using, may decide to make a special appeal to the buyer in that firm. This may take the form of a novel advertising idea—a special display box, a range of new labels, a fresh idea for a folder or a booklet—or he may even show just one special piece of printing which he thinks may be of interest. A definite reason is thereby found for making the call, and this definite reason should be stated in requesting the interview. If the latter is obtained, the mental rules governing an interview should be observed, and in many cases it will prove successful. Buyers are usually prepared to give a few moments of their time to a salesman who calls with a definite purpose. It is the man who really does not know why he has called, except that he was passing the door, who irritates busy business men.

#### THE ART OF LISTENING

Next to stating one's own case clearly, it is important to learn how to listen intently and intelligently. It conditions one's reactions to another's thought, and reactions are important in salesmanship. It is well to make quite sure in your own mind whether you are trying to catch another person's thought with the intention to develop it, or whether you are thinking how to controvert it. In debate, the power to controvert another's thought may be useful, but argument is fatal to salesmanship. Intelligent listening reveals itself by relevant interjections and suggestions which induce in the speaker a desire to develop his thought for the

listener's benefit. An irrelevant remark will often close what might have been a good conversation, for it reveals that the listener is not thinking along the same lines as the speaker. Endeavour to pick up another man's thought where he leaves off and develop it. Avoid telling a buyer what he "means to say," or summing up the gist of his thought for him. Usually you will miss the shade of meaning he is endeavouring to impart to you. If you are a good listener you will not fail to interpret clearly and practically the wishes of a customer.

Always remember that there is more than one way of dealing with almost any situation. It is usually a question of reaction, and the condition of mind in which you listen will condition your mental reaction to the speaker's thought. Study also the art of presenting the right attitude when listening. There are times when you must stand to attention, and there are times when you may stand easy. There are times when you need to lean forward as though not to miss a word of wisdom, and there are times when you may sit back in comfort and absorb all that is being said. Truly the art of listening intelligently is a great asset to a salesman, no matter what he is selling, but it is especially important to a printer's salesman.

#### THE VALUE OF PRACTICAL PRINTING KNOWLEDGE

To a young printer's salesman every piece of paper or card he handles should give rise to thought, both analytical and practical. He should be analytical in considering its substance, quality, weight, and probable source of manufacture, and practical in considering its uses and suitability to certain classes of work. As the powers of observation develop, this study in itself will prove to be of more than passing interest, for the grades, qualities, and finishes of papers and boards are almost

legion. All knowledge being comparative, there is no surer way of gaining a practical working knowledge of paper than by comparison. Comparing one grade of paper with another, noting the difference in texture, feel, and weight, and checking conclusions by reference to marked samples, which can be secured from either paper merchants or the firm's paper warehouse, is an excellent plan for the young salesman to adopt. Too much stress cannot be laid on the value to a printer's salesman of a good knowledge of papers and boards.

Type display and balance of design will also prove a fruitful source of study. Although a pedantic knowledge of the peculiar names of type-faces is not very enlightening, a printer's salesman should study the suitability of the character of the various type-faces for certain work, not with the idea of developing a personal preference, but in order to help his clients. Such knowledge will assist both in dealing with a customer with decided preferences and in guiding one who has a very limited knowledge of type-faces, and also in issuing instructions to ensure that a customer's wishes are carried out. Much more thought and care are given to type display and design by buyers of printing than is generally realized. Therefore, a salesman with a sound knowledge of typographical display can at times be most helpful. An observant printer's salesman can detect at once, in any piece of printing, whether it has been handled by a master of type display and design or by an amateur.

Colour, and its uses in printing, constitute a wide study. New colour combinations in contrast and harmony are ever being sought after by enterprising advertisers, and the printer's salesman should try to know more than a little about their possibilities, especially as they affect his customers, or those to whom he is making new appeals. It must be admitted that

some persons possess a natural colour sense, and should a young printer's salesman be fortunate enough to meet such in the course of his business career, he would do well to adopt the role of a student and gather knowledge while he may. Any piece of printing presenting a striking or very pleasing colour combination should be carefully studied by a printer's salesman, and filed away for future reference.

An accurate knowledge of the suitability of process and line blocks for different classes of work is essential to a printer's salesman; otherwise many difficulties may arise resulting in the disappointment and annoyance of customers, owing to results not being obtained which they had a right to expect.

To be able to tell almost at a glance the process by which any piece of printing was produced should be both the business and pleasure of a printer's salesman's life. Letterpress printing, line reproductions, half-tone blocks, duplex half-tone prints, three-colour prints, and those produced in four colours—all have characteristics of their own, which can be easily discerned by careful examination with the aid of a good magnifying glass.

Then there is the wide field of lithographic printing by either the direct or offset process, each having its distinguishing features and special uses. Although to a salesman selling letterpress printing only, a knowledge of lithography may not be necessary, it should be included in his search for knowledge about printing. Buyers of printing seldom know by what process a piece of printing has been produced, but they do expect a printer's salesman to enlighten them if necessary. Moreover, such knowledge rightly used will often bring more grist to the mill.

The development of photogravure printing should also be included in a salesman's study of printing, for

wonderful effects both in monochrome and colours are now possible by this beautiful process. Moreover, owing to recent improvements, photogravure printers are now in a position to compete in the commercial market for printing that has hitherto been produced by letterpress or lithography.

In addition, there is the great business of carton manufacture, offering wide scope, but necessitating specialized knowledge on the part of the salesman.

All this knowledge forms the necessary mental store from which the printer's salesman can draw in case of need. It is the distinguishing characteristic that differentiates a really useful printer's salesman from others of the great confraternity.

The salesman needs to be the most enlightened man on the staff concerning the mechanical possibilities and limitations of the printing works whose productions he is selling, knowing also the standard of quality that can be maintained, as well as the full possibilities of output in case of emergencies.

#### SALES ORGANIZATION

The selling organization views the print-shop from an angle rather different from that of a departmental head, immersed as he is in all the details incidental to running his department. It views it as a whole, and the outcome of the vision should be to evolve a selling policy centred around the class of printing the whole works are well equipped to produce, and with which the staff are trained to deal, always remembering that new machinery will be installed and new staffs trained as the growth of the business demands.

The selling organization interests itself in what a printer sells, and this is rather difficult to define. A printer is a complex being, weaving together the products of many allied crafts and thereby producing a

perfect whole. Briefly, therefore, he sells his knowledge and skill to combine the products of many businesses into one. He needs must use the papermaker, type-founder, engineer, ink-maker, block-maker, artist, and many others to make up his own business. Consequently a printer's salesman needs to know something of these "other businesses" in order to talk as a printer.

The policy that will govern a printer's selling organization is dictated in large measure by the equipment of the printing office.

#### PROGRESSIVE PRINTERS

In the first instance, certain classes and grades of work have been secured and special machinery has been installed to cope with it, until the printing works can handle that class and grade of work, as regards both mechanical equipment and staff, more economically than any other. This gives some indication as to the policy to be adopted for development. Growth is natural, but spectacular leaps into new ventures may prove financial failures because of insufficient knowledge of all the essential factors. It is generally wise to base development on the foundations that have already been laid.

It is essential for a printer's sales organization to evolve some form of publicity supplementary to the work of the salesmen. This publicity should, in the first instance, be designed with the definite intention of educating the recipient as to the standing of the printing business, and its possibilities of being of service. Should a printer's salesman send in his card to a buyer who has previously never heard even the name of the firm he represents, it is doubtful if he will secure the interview he is seeking, and, even should he do so, he is at a great disadvantage.

The buyer does not know at the outset whether he is speaking to a representative of a firm of such standing as to be of service to him, or whether he is simply wasting his time. He has no vision of the printing business behind the salesman, no connecting link.

This is the psychological reason why prospective customers should be well advised, by means of letters, circulars, cards, booklets, or in other original ways of the standing and class of the printing business, before a salesman makes his first call.

They should be, in every detail, thoroughly representative of the house—not specialized efforts, but of a quality that it is possible to maintain in the general flow of business through the works.

Usually when printers design their own mailing pieces it is with the view of showing what they can do if given *carte blanche* in respect of quality of paper, number of printings, time, etc. The result is a production of little commercial value, for, even if the recipient likes it, he feels that it is too expensive for him to consider.

It is the objective view that is so necessary in preparing sales literature.

Consider first of all, and very carefully, the class and quality of printing the majority of the businesses which you intend to approach are using, and then endeavour to produce something new and striking within those limits.

Never lose sight of the end in view. This is to secure orders for your printing works, which are of such a nature and class that your staff are able to deal with them without excitement and for which the equipment is adequate.

Mail advertising of itself is not sufficient, for printing is peculiar in demanding the personal touch. A sensible buyer of printing likes to know the person who is

looking after his work, and to be assured that it is receiving his personal attention. This is the foundation on which confidence is built, and when confidence in the salesman and the firm has been established it must be respected, and every effort must be made to retain it, for it is as easy to lose as it is difficult to gain.

The ideal method, therefore, when developing new ground, is careful preparation by means of postal advertising, followed in due course with a call by a salesman who is in thorough sympathy with the scheme, and who also has the skill and ability to link the reason for his call to the literature that has already been posted to the prospective client. This calls for salesmanship of a high standard.

The preparation of the copy for printers' advertising is not easy. Some technical knowledge combined with a gift for clear and convincing writing, plus a knowledge of human nature, is essential. If a printer's sales manager does not feel equal to the task, he should know where to be able to secure the necessary assistance, but he must remain in the saddle and take full responsibility for every piece of sales literature sent out.

The design and arrangement of the various advertising messages are definitely the printer's own work and should be his pleasure also.

In a few exceptional instances it may be possible for a firm of printers to publish a House Journal. It has been done with success, but only when the head of the business combines with his other attributes either the ability to write it himself or the wisdom to select the right material from outside sources.

For printers generally it presents many inherent difficulties, not the least of which is the tendency to delay or even miss sending it out at the proper time owing to pressure of orders going through the works. Such delay is almost fatal.

## TERRITORY

It is generally acknowledged that success is in the proportion of 75 per cent salesman and 25 per cent territory. Nevertheless, the choice of a territory for a young salesman should be carefully made, and advice and instruction given to him in regard to its preparation and cultivation.

To turn a young man loose, without definite guidance and practical assistance, is profitable neither to the potential salesman nor to the firm he represents.

The territory should be carefully selected, defined, and prepared by means of sales literature, and definite calls arranged for the young salesman upon which he should report. This steady, well-directed effort will help to instil into the youthful salesman's mind the necessity for plan and purpose in his work. Careful preparation and skilful cultivation are both necessary for turning what at first appears an arid desert into a field that will yield a profitable harvest.

## SUGGESTIVENESS IN SALESMANSHIP

Conversational powers need to be developed by careful training. Apt similes and striking contrasts reveal new facets of interest even in ordinary conversation. By careful thought and study the mind becomes constructive, and thereby suggestive, and, no matter what the subject may be, the trained constructive and suggestive mind sheds new light upon it, and thus carries it a stage further in interest and value. How useful such a trained mind is to a salesman needs no argument. It is self-evident. It is the mental background from which spring naturally and easily new ways and methods of dealing with the problems that beset a salesman's path.

It is well to remember that suggestions never spring from the rank soil of argument. A salesman should

shun argument, and carefully avoid being drawn into it. It is possible to win an argument and lose a sale and, at the same time, a friend. Cultivate the helpful mood. Study to develop it, for it is the ground in which suggestiveness flourishes.

#### THE VALUE OF LEAVING A GOOD IMPRESSION

Impression may be a much overworked word, but to a salesman its value is important. It is the effect or influence on the mind caused by contact with another mind or object. The memory that remains of that contact fixes an image in the mind.

The impression that a salesman should endeavour to leave with a client is that of sound common sense, a thorough knowledge of his business, and a helpful mentality. Many things help the salesman to leave such an impression behind him, such as a careful and neat appearance, courteous manners, ease of approach, a pleasing way of expressing himself, and, by no means least, a few carefully chosen phrases at the close of the interview. But these must be only the natural and outward signs of an inward sincerity of purpose and plan.

In truth the impression a salesman leaves with a prospective client after a first interview will be the sum total of what he really is. If the salesman has sincerely prepared himself for the interview, practically, commercially, and even psychologically, has stored his mental background with sound knowledge, and reveals, in well-chosen words and convincing tone of voice, common sense and sound judgment, he need not be over-anxious about the impression he has made. We may perhaps best judge the impression we make on another by the amount of mental effort that he puts forth to meet whatever proposition we may put before him.

## THE PITFALLS IN A SALESMAN'S LIFE

As this treatise is intended for young and budding salesmen, it is necessary to deal with the pitfalls which beset them in early years. Some men can work only when controlled and directed by others. The salesman's life is not for them. Salesmen must be self-starters, not needing another to wind them up before they will go.

The salesman's day cannot be recorded entirely on a list of calls. No one is more aware of this than the salesman himself. The thing that counts is the amount of preparation and thought given to a regular or prospective customer before the call is made. The studied and prepared approach and the handling of the interview, perchance one is obtained, are often the unrecordable parts of a salesman's work but of supreme importance. It is so easy to fritter away valuable hours and then make hurried and half-hearted calls in the faint hope that something might be picked up which, in the usual course of events, would be sent through the post.

There is the danger, too, of taking the path of least resistance—to be always seeking for short cuts, to rely on friendships, valuable as they are, for introductions instead of putting in real spade work and digging for oneself.

## THE PRICE PROBLEM

It is to be feared that this problem is inherent in the printing business. That it has become an obsession in the minds of many master printers and printers' salesmen must also be admitted.

Anyone who has had the management of a printing office knows by experience how smoothly work with which the staff are acquainted, and for which the equipment is specially suitable, can be made to flow

from one department to another. The workmen are "at home" with it and know exactly what is required of them. The small, but most necessary, appliances in composing rooms, machine rooms, and warehouses are all ready to hand. But if perchance a job is put through that is "off the beaten track," the flow seems to be impeded. There is a sense of nervousness from the manager's office downwards. This is brought home more forcibly when the job has been properly costed, and it is found that the nervousness and excitement have cost many hours that cannot be recovered. There is no doubt that specialization reduces costs.

The real test of the value of a printer's salesman to his employer is his ability to find the class of work suitable for the equipment of the printing works he represents.

Fast-running, modern machinery can be, and is, a big factor in the price problem, and rightly so. The progressive printer who realizes that the methods of a past generation are not suitable to the present age, and is courageous enough to replace his slow-running machines and appliances by those of a modern type giving quicker production combined with better results, is deserving of success. It need surprise no one if he out-distances his slower *confrères* by giving better service at a more economical price than they can possibly give by means of old-time methods.

And, again, skilful and scientific management based on accurate costs will reveal not only where losses are made, but also where savings can be secured. By reason of analysing the different processes through which the work passes in a printing office, and seeking for new and better ways of accomplishing it, many labour- and time-saving methods have been devised, which have materially helped in reducing costs.

It is clear, therefore, that the price problem is not

one for the salesman only. But it is a salesman's duty to study it carefully and find out if possible how and where he has been beaten on price.

In regard to the price problem from the salesman's point of view, the type of buyer also needs to be analysed.

1. The buyer may not be able to afford the quality of printing you are offering and wants something cheaper.

2. By comparison with other similar printing he has purchased he may sincerely believe that the price quoted is on the high side.

3. He may dispute the price as a matter of business.

4. It may be the buyer's rule to obtain several estimates for every job, and then you may be definitely beaten in price by a house able to produce the job, for which you have quoted, in every way equal in quality to work produced by the house you represent.

Training, buttressed by experience, will soon enable a salesman to detect to which of these classes a buyer of printing belongs, and he should then be able to deal with him in the appropriate manner.

If a printer's salesman has sufficient knowledge of costs and is of such a calibre that he can be trusted with the details of an estimate, he has many valuable talking points at his command when price is discussed. It is necessary, however, that a salesman should first prove himself worthy of this confidence and trust.

As a pendant to the foregoing, it needs to be added that, of course, all printing orders are not secured on price alone; otherwise there would be no need for printers' salesmen, but simply order-takers.

It has, however, been necessary to deal with the problem at some length in order that the young salesman may endeavour to understand it for himself. He is sure to be faced with it, especially at the commencement

of his career, and it cannot be fought and overcome by ignorance, but by knowledge only.

#### IMPULSE VERSUS PURPOSE

Impulse is an urge from the subconscious mind that impels one to act in order to obtain a desired object. It is usually sudden, momentary, and born of excitement aroused by outside influences. Judgment is lacking. Impulses ebb and flow according to one's feelings. They are good or bad, wise or unwise, in the same proportion as one's thinking and outlook on life is good or bad, wise or unwise. Impulse has its place in a salesman's work, but needs constant control. Otherwise there can be no steady progression, but simply spasmodic efforts.

Purpose, on the other hand, implies steady progress. A young salesman cannot hope to travel far unless at some time or another he takes his life into his own hands and shapes it to fulfil a definite purpose. But first it is essential that he should know what he really wants. Few men really know what they want in life. The average man loves a peaceful routine without risks, dreams of success, but lacks the spirit of adventure. Most successful men, however, find their true selves in an atmosphere of collision and disturbance. If life is dominated by purpose, the road to attainment will of necessity be rough and beset with barriers that must be broken down. The very effort, however, will attract helpful forces which often come to one's aid from most unexpected quarters.

Just what is meant by purpose as applied to a young printer's salesman may perhaps be best stated in the following creed—

1. I believe I am a potential salesman.
2. I am prepared to study, read, and learn all I can about the art of selling.

3. I will endeavour to understand a little more than others regarding the value to those who buy them of the goods or services I am selling.

4. As I shall have to deal with all sorts and conditions of men, I will endeavour by study and experience to find the best methods of dealing with them.

5. As I must, for myself, find new outlets for the goods or services I am selling, I will endeavour to find the best way to do it.

6. I am prepared to pay the price in work, service, and effort to attain the end I have purposed.

In the old coaching days it was said that more horses were worn out on the Slough road, which for miles is perfectly level, than in the hilly districts of the north. The dead level kills. It is the effort to climb that gives zest to life, and brings into play forces and powers that otherwise would remain dormant.

In the early years of life as a salesman, do not seek the easy, level road, but with plan and purpose attempt tasks which at first may seem too big for you, for in the attempting, if sincere and definite, your powers will develop.

A great statesman talking shortly before his death made a phrase which he thought good. He said, "A man's life should be

Sought out

Thought out

Wrought out."

It is a splendid idea for a youth in any walk of life, but surely it has a special application to a young man who has taken up salesmanship as a career.

#### TAKING STOCK

At certain periods all well-conducted businesses take stock and eventually produce a profit and loss account.

A young salesman should periodically take stock of

himself, seeking to know if the qualities essential to his calling are being developed. He would therefore do well to answer conscientiously the following questions—

1. Am I becoming more adaptable?
2. Am I gaining confidence?
3. Are my business knowledge and judgment becoming more accurate?
4. Am I able to control an interview?
5. Have I thoroughly grasped the mental processes through which an interview progresses?
6. Am I able to listen patiently and intelligently?
7. Is purpose asserting itself in my career?
8. Is my knowledge of human nature increasing?
9. Am I becoming more tactful in dealing with men?
10. In what measure have I attained to the ideals I set myself?
11. Have I attained the sales figure I set out to accomplish in the period under review?
12. Have I made progress in gaining the confidence of my employers and customers?

Honestly answer these questions for yourself, and you will have a personal profit and loss account of infinite value.

#### BUSINESS FRIENDSHIPS

This treatise would be incomplete without a note on business friendships. The ability to make friends is a great gift, and in business many true and lasting friendships are made. Business friendships are usually based on a business essential: the ability to be helpful and useful, not for the reason of immediate gain, but for the real pleasure that comes from helping another. It is wise to endeavour to make friends, always remembering that friendship implies giving as well as taking, and that business, though greatly helped by friendships, is based on commercial values.

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